2016
Supplement to the
TACOMA-PIERCE COUNTY SOLID WASTE MANAGEMENT PLAN

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American Disposal

D.M. Disposal

Murrey's Disposal

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Pierce County Refuse (LeMay)

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City of Bonney Lake

City of Buckley

Town of Carbonado

City of DuPont

Town of Eatonville

City of Edgewood

City of Fife

City of Fircrest

City of Gig Harbor

City of Lakewood

City of Milton

City of Orting

City of Puyallup

City of Roy

City of Ruston

Town of South Prairie

Town of Steilacoom

City of Sumner

City of University Place

Town of Wilkeson

ADOPTION ORDINANCE

Sponsored by: Councilmember Connie Ladenburg
Requested by: County Executive/Public Works Dept.

ORDINANCE NO. 2016-83

An Ordinance of the Pierce County Council Adopting the 2016 Supplement to the 2000 Tacoma-Pierce County Solid Waste Management Plan Pursuant to Chapter 70.95 Revised Code of Washington (RCW) and Chapter 8.28 of the Pierce County Code (PCC); Amending Chapter 8.28 PCC, "Solid Waste Management"; and Requesting the Executive Solicit Letters of Concurrence or Adoption from Cities and Towns Pursuant to the Existing Solid Waste Interlocal Agreements.

Whereas, Chapter 70.95 of the Revised Code of Washington (RCW) requires Counties, in coordination with their Cities and Towns, to adopt comprehensive solid waste plans for the management, handling, and disposal of solid waste, and to keep those plans in a "current" status through periodic review, update, and amendment; and

Whereas, Pierce County executed and maintains Solid Waste Interlocal Agreements with the Cities and Towns of Pierce County pursuant to Chapter 39.34 RCW and RCW 70.95.080; and

Whereas, said Solid Waste Interlocal Agreements designate Pierce County as lead solid waste planning agency pursuant to RCW 70.95.080(3); and

Whereas, the Pierce County Council approved the 2000 Tacoma-Pierce County Solid Waste Management Plan (2000 Solid Waste Plan) by Ordinance No. 2000-47s on December 12, 2000; and

Whereas, the Pierce County Council approved the 2008 Supplement to the Tacoma-Pierce County Solid Waste Management Plan (2008 Supplement) by Ordinance No. 2008-57s2 on November 18, 2008; and

Whereas Pierce County, in coordination with the Pierce County Solid Waste Advisory Committee (SWAC), drafted the 2016 Supplement to the Tacoma-Pierce County Solid Waste Management Plan (2016 Supplement) to replace the 2008 Supplement with updated goals and actions and otherwise maintain the 2000 Solid Waste Plan in a "current" status; and

Whereas, the SWAC, in 11 regular meetings which included a Community Conversation portion for public participation, gathered and provided public comment on the 2016 Supplement; and

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Tacoma, WA 98402

Whereas, the 2016 Supplement was also presented to the public for comment at community events, with a virtual workshop on the Pierce County website, and through advertisements on social media; and

Whereas, the Pierce County Council adopted Resolution No. R2016-14 on March 30, 2016, accepting and referring the 2016 Supplement for public and agency review and comment; and

Whereas, the Pierce County Planning Commission reviewed the 2016 Supplement for conformance with the Comprehensive Land Use Plan on May 24, 2016, and recommended approval of the 2016 Supplement; and

Whereas, the SWAC held a public hearing on May 11, 2016, and provided comments and recommended approval of the 2016 Supplement on June 8, 2016; and

Whereas, the Washington Utilities and Transportation Commission completed their review pursuant to Chapter 70.95 RCW and provided comments on June 23, 2016; and

Whereas, the Washington Department of Ecology completed their review pursuant to Chapter 70.95 RCW and provided comments on September 7, 2016; and

Whereas, the 2016 Supplement was submitted to Cities and Towns of Pierce County for review and comment, with the County providing in-person and telephone briefings to interested officials; and

Whereas, the Pierce County Environmental Official issued an Addendum to the Programmatic Final Environmental Impact (FEIS) for the Tacoma-Pierce County Solid Waste Plan in compliance with Title 18D PCC, "Development Regulations – Environmental"; and

Whereas, throughout the review process, the County received, and has now incorporated into the 2016 Supplement, approximately 30 non-substantive edits to the Draft originally published in October 2015 and viewed by the Council in March 2016; and

Whereas, Chapter 8.28 PCC must be amended to reference the adoption of the 2016 Supplement as an amendment to the 2000 Solid Waste Management Plan; **Now Therefore,**

BE IT ORDAINED by the Council of Pierce County:

Section 1. The 2016 Supplement to the Tacoma-Pierce County Solid Waste Management Plan is hereby adopted as set forth in Exhibit A, which is attached and incorporated herein by reference.

Pierce County Council
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Tacoma, WA 98402

ADOPTION ORDINANCE (CONT):

Section 2. Chapter 8.28 of the Pierce County Code, "Solid Waste Management," is hereby amended as set forth in Exhibit B, which is attached hereto and incorporated herein by reference.

Section 3. The Council requests the Pierce County Executive solicit from each City and Town that has executed a Solid Waste Interlocal Agreement with Pierce County a Letter of Concurrence or Adoption for the 2016 Supplement.

Section 4. If any provision of this Ordinance or its application to any person or circumstance is held invalid, the remainder of this Ordinance or the application of the provision to other persons or circumstances shall not be affected.

PASSED this 21st **day of** March **, 2017.**

ATTEST:

Denise D. Johnson

Denise D. Johnson
Clerk of the Council

PIERCE COUNTY COUNCIL
Pierce County, Washington

Douglas G. Richardson
Council Chair

Bruce F. Dammeier
Pierce County Executive
Approved X Vetoed _____, this
4th day of April
2017.

Date of Publication of
Notice of Public Hearing: March 1, 2017

Effective Date of Ordinance: April 14, 2017

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INTRODUCTION

This supplement represents a refreshed effort to build upon our many successes and tackle some of our biggest challenges. It does not replace the 2000 Solid Waste Management Plan. It sets the direction we aim to go and defines the path forward. As the vision clearly states, success will only come by way of a shared commitment amongst all of us. Let this be an invitation to us all to lead by example and help create a more sustainable Pierce County.

OUR VISION

People, businesses and agencies work together to reuse resources and waste little.

OUR GOALS

Our vision is supported by four goals focused on System, Culture, Decisions and Measurement.

SYSTEM

We support and expand opportunities to minimize waste.

Our System goal aims to ensure Pierce County and the City of Tacoma provide the infrastructure and resources to meet our solid waste needs. It focuses on making improvements to the system that make it easier for each of us to reduce, reuse and recycle.

CULTURE

We are a community of invested, active participants working together to reduce waste.

Culture addresses our behaviors and individual roles within the solid waste management system. It aims to improve everyone's understanding of how the system works, allowing us to make better, smarter decisions to avoid waste generation first and manage waste responsibly second.

DECISIONS

Decisions are practical, understandable and transparent, providing opportunities for innovation while balancing economic, environmental and societal impacts.

Our Decisions goal begins to build a more robust decision-making framework around what materials are accepted and how they are processed. It also directs the County to identify barriers to the use of necessary facilities and to think critically about how and when to participate in and partner with other entities.

MEASUREMENT

Actions, programs and services are measured and evaluated for effectiveness and efficiency.

Measurement builds upon the success of our regular Waste Trends Analysis, directing us to measure more, document better and improve based on what we learn.

MATERIALS MANAGEMENT PHILOSOPHY

Solid waste, which includes garbage, recyclables and compostables, is any material that must be managed after it has been used. We recognize that solid waste has a tremendous impact on the well-being of our community, even when properly managed. Collecting, transferring and processing solid waste requires building and maintaining facilities and equipment, and costs the community hundreds of millions of dollars each year.

Everyone in Pierce County can do something about these impacts. Our daily choices have a direct impact on the generation, type and volume of solid waste. This supplement sets the expectation that our first priority as a community is to avoid waste at the source. We then efficiently and effectively manage waste that is generated, leading to a more **sustainable** community. With our growing emphasis on avoiding waste, we are proposing a materials management approach.

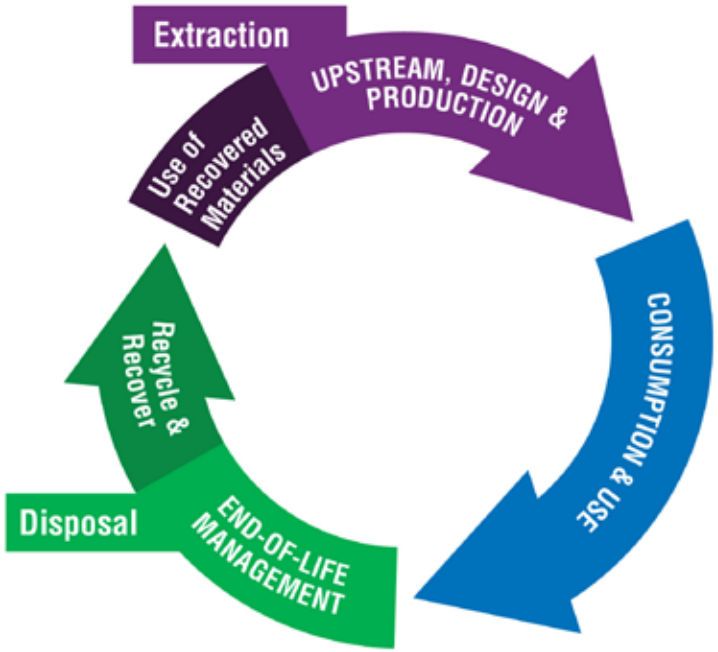
Sustainability

Sustainable is not a synonym for "green" nor does sustainability mean "environmentally friendly." Sustainable decisions and actions consider all factors that might affect maintainability such as economics, efficiency, equitability, effectiveness and environment. Sustainable decisions and actions will be forward thinking and improve the community through conservation of resources, time and money and by increasing the effectiveness of social and community networks.

MATERIALS HAVE VALUE

Historically, solid waste programs have focused on what to do with waste after it has been produced; this is considered end-of-life management (see material life cycle figure). Although end-of-life management is important, Pierce County and other solid waste management programs are considering the entire life cycle of the items and products everyone uses. In order to have

Material Life Cycle



Upstream, design and production
Aluminum can manufacturers are designing a new generation of cans with 10 percent less material. A single gram of weight saved in a can saves over 200,000 tons of aluminum globally each year.

packaging.world-aluminium.org

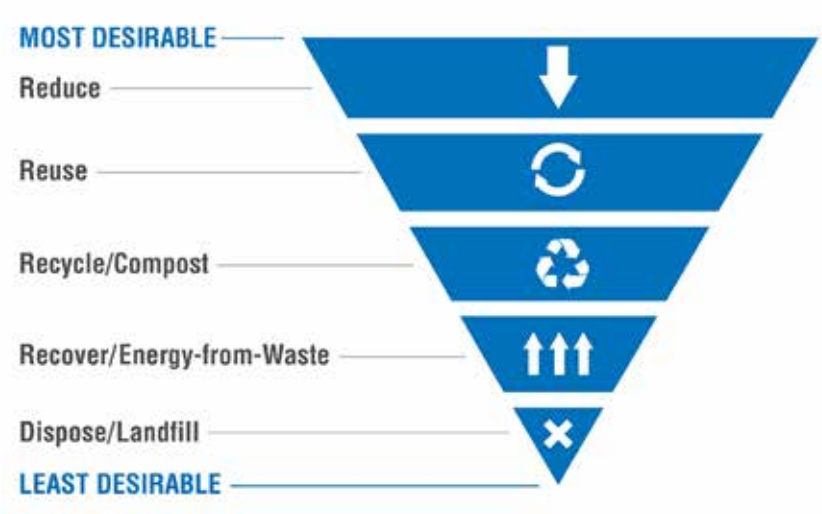
Consumption and use
Forty percent of food grown or raised in the U.S. is not eaten. This food waste accounts for a quarter of all freshwater consumption and the consumption of 300 million barrels of oil per year. Changing how we purchase and use food could make a huge impact on our nation's water supply.

reliablewaterservices.com

End-of-life-management
The average mobile phone battery contains 3.5 grams of recyclable copper. That's enough copper to make over 50 pennies.

ewastedisposal.net

Materials Management Hierarchy



less overall material to manage, we must rethink how we, as a community, consume and use materials. You will see this emphasis on consumption and use as critical components of the material life cycle in our vision, goals and objectives.

All products require natural resources to bring them to market (i.e., the energy and materials used to extract, process, manufacture, package and transport the product). Extracting resources is costly, both economically and environmentally. For example, products brought to market, whether they are food or computers, generate 42 percent of all greenhouse gases emitted in the U.S. (EPA 2006). The goal of a materials management philosophy is to save as much of these raw materials, water and energy as feasible through a range of practices.

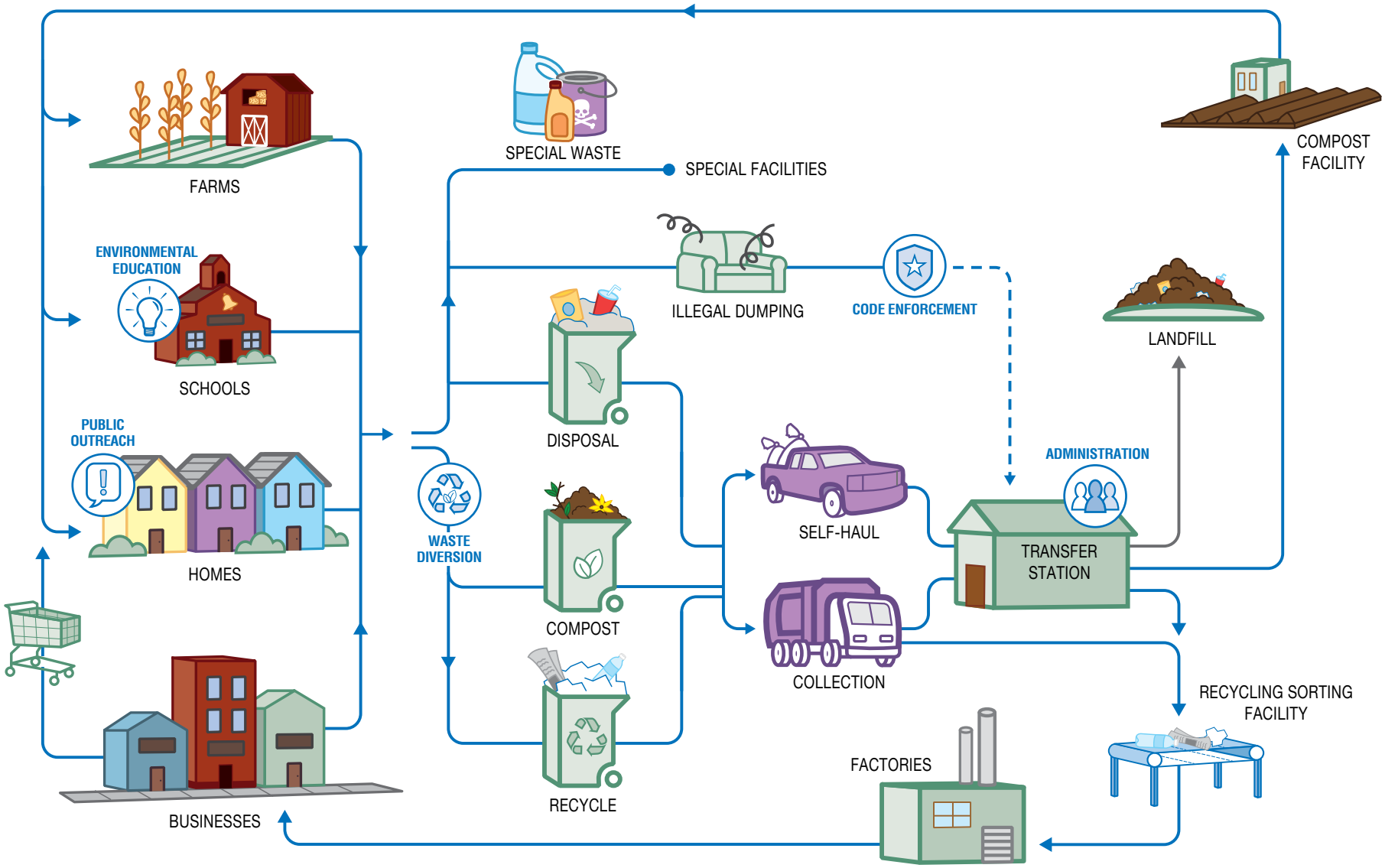
The most efficient way to achieve this goal is to reduce waste by not creating it in the first place (see materials management hierarchy). If everyone works together to reduce the amount of waste generated, we can decrease our need for costly disposal and recycling facilities. Small changes can have large impacts. For example, a fast-food restaurant chain can avoid 68 million pounds of packaging every year by pumping soft drink syrup directly from a delivery truck into tanks at the restaurant, instead of shipping the syrup in cardboard boxes (*donellameadows.org*).

The next best option is to do something beneficial with those materials after their first use by reusing, recycling or composting them. This extends the life of the materials and avoids spending additional resources on their disposal. For example, recycling one ton of paper saves 17 trees, 7,000 gallons of water, two barrels of oil and enough energy to power the average American home for six months (*epa.gov*). Reusing, recycling and composting is referred to as waste diversion because it avoids placing items into a landfill and prevents the constant need to begin the process again at extraction.

To fully implement the materials management philosophy, our community must recognize that all products and packaging have intrinsic value because of the energy and natural resources invested in their production. Used materials are not just waste, they are useful materials that must be managed and reused accordingly.

THE MATERIALS MANAGEMENT SYSTEM

The materials management system includes all aspects of our system from waste generation to disposal. This graphic illustrates the circular nature of our system and economy. By making smart purchases and reusing resources efficiently and sustainably throughout their lifecycles, we can help reduce waste at every step of the system.

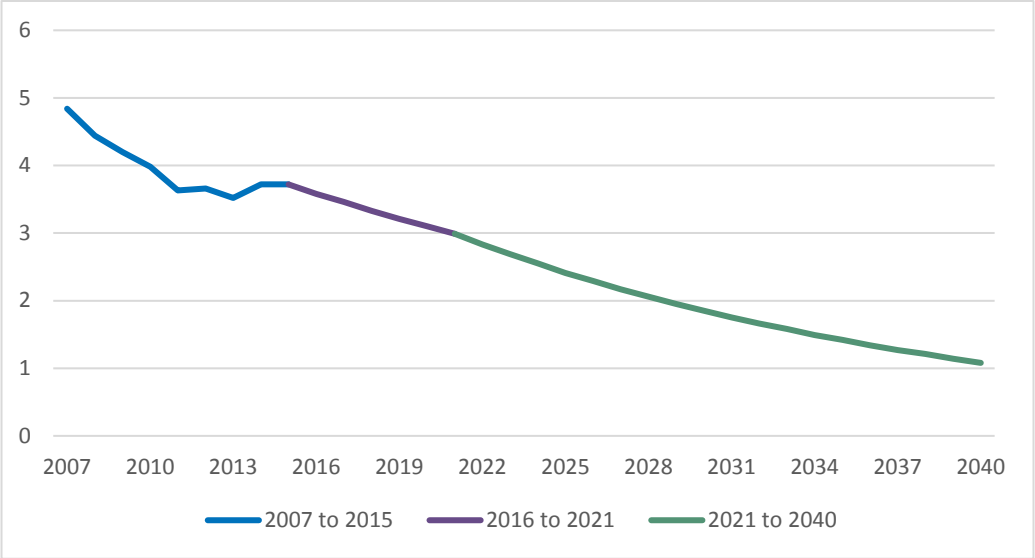


SYSTEM TARGET: 1.09 POUNDS PER DAY

The 2000 Solid Waste Management Plan did not include a specific numerical waste reduction target, but did include two broader measures: to reduce per capita waste generation and to maintain and improve upon Pierce County's recycling rate. The Solid Waste Advisory Committee took a similar continuous improvement approach when it drafted the 2008 Supplement. During the public hearing process, the Pierce County Council asked the Public Works Department to propose year-by-year numerical targets by which continuous improvement could be measured. Appendix F to the 2008 Supplement demonstrated what could happen to the waste stream with a combination of annual increases in per person recycling and annual decreases in per person disposal. This table identified 1.09 pounds of garbage per person per day as the disposal rate target for 2032 (25 years after the Supplement).

Since adopting the 2008 Supplement, 1.09 pounds per person per day has come to be seen as the system's performance goal or target, with each year's calculation recognized as a measurable benchmark. Each year's target can be viewed in *Chart E-3*. After reflecting on the stated purpose of this supplement to serve as a bridge to a new plan in 2020 and recognizing that this target is consistent with the goals and objectives identified in this supplement, the Public Works Department recommends retaining the 1.09 goal for the 2032 to 2040 timeframe. At the same time, we will continue the annual Waste Trends Analysis (at least) through 2018. This will generate five consecutive years of detailed disposal data, setting the stage for a new, post-2040 goal that can be proposed in the next plan.

Pounds of Waste Disposed per Person per Day

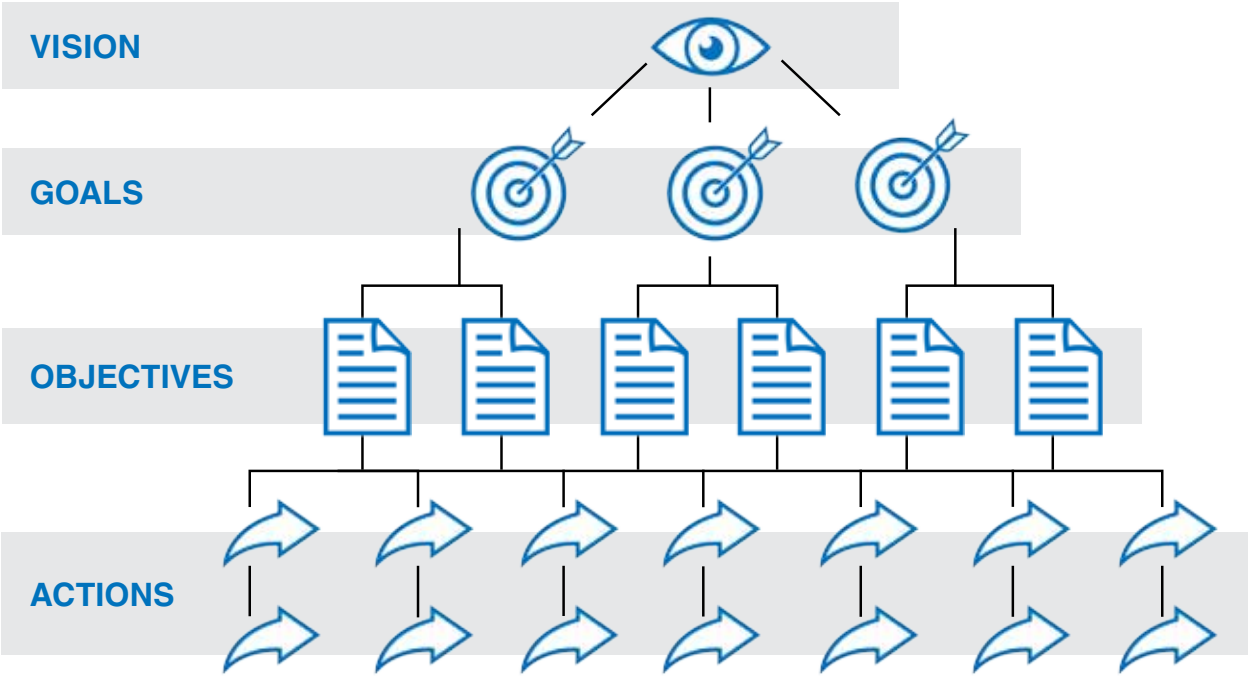


APPROACH FOR THE NEXT FIVE YEARS

This supplement augments the *Tacoma-Pierce County Solid Waste Management Plan* (Plan) which was adopted in 2000 and approved by the Washington Department of Ecology in 2001. The two documents should be used together; the Supplement amends, but does not replace, the Plan.

This supplement builds on the success and progress we have made through our existing programs and practices, with the support of our residents and community. It also establishes our vision for Pierce County and its materials management system. Our vision is supported by five-year goals focused on: System, Culture, Decisions and Measurement. While the goals are interconnected and interdependent, each goal will be reached with specific and measurable objectives and accompanying actions. This pyramid of vision, goals, objectives and actions creates the framework for our next five years of work.

The following pages describe what needs to be done (objectives) and how we will accomplish (actions) each goal. Each objective is introduced with a statement about the specific challenge that led to the objective. There is also a section describing what will result from achieving the objective and how it moves us towards our vision.



2016 SUPPLEMENT OVERVIEW

VISION

People, businesses and agencies work together to reuse resources and waste little.

System

We support and expand opportunities to minimize waste.

Objectives

S-1 Pierce County evaluates the feasibility of standardized recycling, yard waste and garbage collection in all sectors of the county.

S-2 Pierce County identifies sustainable funding for waste reduction, recycling, environmental education and code enforcement programs which maintains a reasonable fund balance, satisfies operational and capital obligations and aligns with sources of funds.

S-3 Pierce County and the City of Tacoma implement strategies to expand the variety of materials targeted for diversion at transfer stations, where feasible.

S-4 In Pierce County, people can recycle away from home as easily as they can at home.

Culture

We are a community of invested, active participants working together to reduce waste.

Objectives

C-1 Materials management service providers use consistent language and key messages in interactions with stakeholders and customers.

C-2 Pierce County has a formalized framework to guide selection of strategies used to engage residents and stakeholders in decision-making.

C-3 Wasted food is reduced, meeting targets established by annual waste audits.

C-4 The quantity of targeted single use items in the waste stream is reduced.

C-5 The quality of participation in garbage, recycling and organics collection services increases annually in targeted customer types.

C-6 Our community demonstrates an increased working knowledge of how individual behaviors and choices affect the system and the world around us.

Decisions

Decisions are practical, understandable and transparent, providing opportunities for innovation while balancing economic, environmental and societal impacts.

Objectives

D-1 Pierce County and the City of Tacoma develop and implement formal partnership strategies designed to strengthen connections with agencies, for-profit companies and not-for-profit organizations that share in the goals and vision established in this plan (e.g., partnering with the Pierce Conservation District).

D-2 Pierce County and the City of Tacoma develop, document and implement strategies for deciding what materials are diverted and how they move through the materials management system.

D-3 Pierce County and the City of Tacoma develop, document and implement strategies for deciding what materials are targeted for reduction.

D-4 Pierce County Public Works evaluates whether there are barriers to designing and locating the materials management infrastructure required to implement the Solid Waste Management Plan.

Measurement

Actions, programs and services are measured and evaluated for effectiveness and efficiency.

Objectives

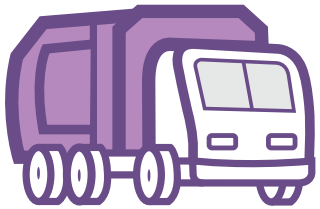
M-1 Significant materials management practices are evaluated for sustainability.

M-2 Pierce County and the City of Tacoma have established waste diversion targets based on recycling stream and other relevant data.

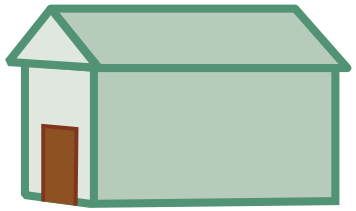
M-3 Pierce County and the City of Tacoma have established waste reduction targets based on waste trends analysis and other relevant data.

SYSTEM

We support and expand opportunities to minimize waste.



COLLECTION



TRANSFER STATION

COMPOST FACILITY

LANDFILL

SYSTEM

We support and expand opportunities to minimize waste.

OBJECTIVE S-1

Solid Waste Collection | Pierce County evaluates the feasibility of standardized recycling, yard waste and garbage collection in all sectors of the county (2016–2017).

The Challenge

Across Pierce County the collection methods, pickup frequency and container use for trash, recycling and yard waste vary significantly. This creates confusion for residents, especially those who move from one part of the county to another. Multifamily housing complexes are also problematic since they often have the same-colored large containers for recycling and garbage. These variations in service do not give an impression of a coordinated **materials management system**.

Actions

1. Inventory current service options and container size, color and design across Pierce County.
2. Work with service providers to study those aspects where standardization is most feasible.
3. Explore options, and any necessary legislative remedies, to allow for mandatory garbage service in part or all of unincorporated Pierce County
4. Develop a plan to implement a standardized system across the county.

Materials management system

Includes all aspects of the system from waste generation to disposal. The system aims to use and reuse resources efficiently and sustainably throughout their lifecycles. It seeks to minimize materials used and all associated environmental impacts.

Same-colored recycling and garbage containers can lead to confusion

Automated curbside collection is available in some parts of the county

The Result

Standardization would mean all of unincorporated Pierce County (and possibly all of the cities and towns which are part of the Tacoma-Pierce County Solid Waste Plan and this supplement) would receive identical and seamless service offerings. The Pierce County Public Works Department will make decisions regarding when and how to implement this plan at a later date, once all the information has been collected and the feasibility has been analyzed.

SYSTEM

We support and expand opportunities to minimize waste.

OBJECTIVE S-2

Administration | Pierce County identifies sustainable funding for waste **reduction**, recycling, environmental education and code enforcement programs which maintains a reasonable fund balance, satisfies operational and capital obligations and aligns with sources of funds (2017).

The Challenge

Pierce County Public Works currently oversees and funds waste reduction, recycling, environmental education and code enforcement programs. We also fund related activities in other departments. In some instances, the source of the funding may not be directly related to the recipients of these activities. In all cases, though, these activities and partnerships are approved by the Pierce County Executive and Council.

Revenue (either current year revenue or revenue retained from prior years) from disposal fees collected at solid waste facilities funds our programs as well as these partner activities. Looking ahead, our ability to fund our internal programs and our partner-provided services will be limited by several factors.

- Within the next five to seven years we will gradually reduce the prior years' funds and will rely solely on current-year operating revenue to fund services.
- Our efforts to reduce waste will shrink the size of the disposal stream and lessen the fees we collect.
- We will need to re-invest in our capital facilities to maintain their ability to serve customers' recycling, composting and disposal needs.

Actions

1. Explore, evaluate and prioritize available funding options.
2. Develop and implement recommendations for long-term funding.

The Result

Sustainable long-term funding will address both short-term needs and long-term obligations and align the source of funds (e.g., commercial customers) with the use of funds (e.g., commercial recycling outreach). This funding will allow us to continue to serve our customers and focus our resources on meeting the goals and objectives outlined in this supplement.

Reduction

The effort to avoid waste at its source and therefore have less waste to manage.

The code enforcement program responds to illegal junk vehicles

SYSTEM

We support and expand opportunities to minimize waste.

OBJECTIVE S-3

Waste Diversion | Pierce County and the City of Tacoma implement strategies to expand the variety of materials targeted for **diversion** at **transfer stations**, where feasible (2018–2019).

The Challenge

Some of the materials brought to transfer stations in Pierce County could be reused or recycled (e.g., bicycles, mattresses, clean wood waste and metal). Similarly, some facilities only accept and recycle materials that are commonly part of curbside recycling programs and do not accept and recycle other valuable materials, such as construction material. Most of these facilities are not designed or operated in a way to accept and divert these items. In some cases these materials are pulled out of the waste stream at the transfer station and sent to recycling or reuse facilities, but we could remove more. We are missing opportunities to divert material from the landfill and potentially increase recycling revenue.

Actions

1. Create a list of materials to target for diversion, using waste diversion strategies (see D-2).
2. Identify barriers and opportunities for increasing diversion at each transfer station.
3. Find partners for ongoing reuse and recycling sites.
4. Coordinate with transfer stations to develop and implement strategies for each transfer station to accept and handle new materials.

The Result

Expanding the variety of materials that can be diverted from transfer stations will reduce the overall amount of material entering the landfill. Some of the opportunities may include providing space for Goodwill donation trucks, collecting building materials, bicycles and other reusable items, or recycling clothing and textiles. Each transfer station is unique and will be individually evaluated to determine if diversion opportunities are possible (e.g., there is enough space, staffing). Safety will be a top priority when implementing these opportunities.

Diversion

The avoidance of placing items into a landfill through reuse, recycling and composting.

Transfer station

A facility where self-haulers and collection vehicles deposit waste collected offsite. The waste is then moved to larger vehicles for transport to solid waste handling facilities (e.g., landfills, composting facilities, materials recovery facilities).

Diverted materials are collected at a transfer facility

SYSTEM

We support and expand opportunities to minimize waste.

OBJECTIVE S-4

Waste Diversion | In Pierce County, people can recycle away from home as easily as they can at home (2018–2020).

The Challenge

Convenient curbside recycling is available to most Pierce County residents; however in public spaces, away from home, it can be very difficult to recycle. Despite state regulations requiring public event vendors to provide and maintain recycling containers, many events in Pierce County still lack the necessary coordination and containers for recycling valuable materials, such as aluminum cans and plastic bottles. Other public facilities, such as parks and hotels, also lack opportunities to recycle. In some cases, commercial property developments do not include adequate space for and access to recycling containers. These facts combine to make it much more difficult to recycle once residents leave the comforts of home.

Actions

1. Investigate relevant practices, policies and guidelines (e.g., those for public events, property development) for reference to recycling containers.
2. Identify recycling barriers and opportunities (e.g., no recycling containers at parks) and prioritize targets.
3. Identify successful programs and/or develop model programs and/or guidelines in partnership with relevant parties.
4. Pilot model programs in targeted sectors and document results.
5. Implement successful pilots on a broad scale.

Material specific recycling bins are located in some public spaces in the county

Recycling and garbage bins are available away from home

The Result

Making it easier for residents to recycle away from home will improve recycling rates and reinforce the importance of recycling. Working with partners from various sectors, we can increase opportunities for recycling in public spaces by developing model programs and guidelines. These new initiatives will be piloted and the results will be documented. The most sustainable and successful pilots will be implemented broadly.

CULTURE

We are a community of invested, active participants working together to reduce waste.

BUSINESSES

FARMS

HOMES

SCHOOLS

CULTURE

We are a community of invested, active participants working together to reduce waste.

OBJECTIVE C-1

Administration | Materials management service providers use consistent language and key messages in interactions with stakeholders and customers (2016).

The Challenge

In Pierce County curbside garbage, recycling and yard waste providers and services vary throughout the county. This variability in services with different providers makes delivery of consistent key messages essential. Over time, stakeholders and customers have noted a lack of consistency regarding communications, sometimes resulting in confusion or even incorrect information being given to customers.

Actions

1. Work with system providers to develop and implement a communication plan that identifies key messages, roles and responsibilities.
2. Work with system providers to review and revise the plan (as necessary) to ensure consistent communication strategies, materials and messaging.

Consistent language helps customers understand the materials management system

A review process is necessary to determine the most appropriate key messages

The Result

Implementing a clear communication plan will build credibility by clarifying responsibilities and ensuring correct, consistent information is provided to customers. Improved communication will help stakeholders and customers better understand the system and make more informed decisions. Regular plan review will evaluate the effectiveness of this effort.

CULTURE

We are a community of invested, active participants working together to reduce waste.

OBJECTIVE C-2

Administration | Pierce County has a formalized framework to guide selection of strategies used to engage residents and stakeholders in decision-making (2016).

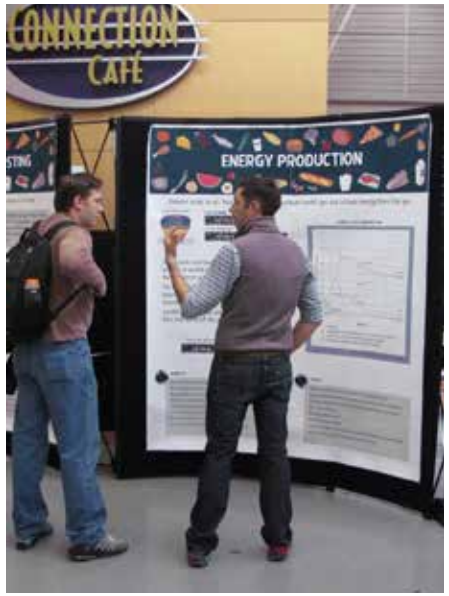
The Challenge

We value residents and stakeholders as owners and partners in the materials management system and are committed to their engagement and participation in decisions. We currently do not have a formal framework to identify appropriate engagement strategies. The lack of a framework means we may overlook opportunities to engage residents and stakeholders in meaningful conversations about their involvement in the materials management system.

Actions

1. Identify the types and breadth of decisions where stakeholder/resident engagement can be used (e.g., not all decisions require broad community engagement).
2. Define levels of community engagement.
3. Develop a toolbox of effective engagement methods including the purpose, timing, appropriate use, evaluation techniques and case studies for each method.

Students complete a food waste survey



Outreach events inform the public about food waste

The Result

This engagement framework will ensure we consciously consider when, where and how to engage customers and stakeholders in decision-making. It will create consistency and provide structure when evaluating tools and techniques for appropriateness and feasibility. This process will also provide a pathway for innovation, allowing residents and stakeholders to engage and bring their ideas to the table. The actions listed above do not identify specific details of the framework, but instead focus on the steps required for development.

CULTURE

We are a community of invested, active participants working together to reduce waste.

OBJECTIVE C-3

Waste Reduction | Wasted food is reduced, meeting targets established by annual waste audits (2017–2019).

The Challenge

The disposal of edible food wastes valuable resources. It wastes time, water, energy and money used for production, transportation, purchase and disposal of the food. This is a community issue crossing multiple sectors (e.g., residential, commercial). It can be addressed through changes in the manufacturing and delivery of food, as well as through behaviors of individuals.

Actions

1. Determine the quantity of edible food that is currently disposed.
2. Identify partners, barriers and efficiencies/opportunities to reduce the waste of edible food.
3. Support and participate in relevant efforts to increase food system efficiencies.
4. Support local efforts, such as the *Gleaning Project*, that facilitate getting edible produce to those in our community needing it most.
5. Provide the tools and guidance necessary for businesses and people to make changes to the way they grow, sell, shop, store and consume food.
6. Evaluate success of efforts using waste trends analysis data (see M-3).

The Result

When we, as a community, understand the quantity of wasted food and the problems associated with this waste, we will be empowered to make changes. Reducing this waste will have noticeable impacts to the amount of material unnecessarily sent to the landfill. Reducing food waste and increasing food system efficiencies will also help reduce the amount of valuable natural resources used to produce our food. These efforts will result in a measureable difference in waste trends analysis data.

Gleaning helps to prevent food waste

The Gleaning Project volunteers harvest strawberries

CULTURE

We are a community of invested, active participants working together to reduce waste.

OBJECTIVE C-4

Waste Reduction | The quantity of targeted single use items in the waste stream is reduced (2018–2019).

The Challenge

Single use items have a very short life span and waste valuable resources. Resources are used to continually create these items. Then, more are used to dispose of them after one use. These items make up a large portion of our waste stream and could be avoided by using durable goods having longer and more robust life spans.

Actions

1. Identify single use items to target (see D-3).
2. Quantify targeted single use items in the solid waste stream.
3. Identify practical alternatives for the items.
4. Develop and implement an outreach strategy that facilitates change in the way we manufacture, use and dispose of single use products.
5. Evaluate results of outreach implementation using waste trends analysis data (see M-3).

Single use items waste valuable resources

Reusing materials, like these cabinet doors, lowers the amount of waste we generate

The Result

Reducing the amount of single use items in the waste stream by encouraging people to choose more sustainable, reusable materials is necessary to lower the amount of waste we generate annually. Working together to find ways to switch from unnecessary single use items to durable, reusable items will support a culture that wastes little. The items targeted for reduction will be identified in D-3. Outreach efforts will be evaluated based on waste trends analysis data.

CULTURE

We are a community of invested, active participants working together to reduce waste.

OBJECTIVE C-5

Education and Public Outreach | The quality of participation in garbage, recycling and organics collection services increases annually in targeted customer types (2018–2020).

The Challenge

Active, comprehensive and consistent participation in garbage, recycling and organics collection services by the entire community is key to creating a culture of little waste. Currently, some residences, businesses and institutions either do not correctly participate or do not participate at all. For example, they may enroll in recycling services, but routinely place most of their recyclable materials into the garbage.

Actions

1. Create a metric to measure quality of participation in garbage, recycling and organics collection services.
2. Quantify current quality of participation for all customer classes.
3. Identify barriers to participation (e.g., language, infrastructure) in low participation areas and/or sectors (e.g., multifamily, schools).
4. Develop and implement strategies to address barriers and increase the quality of participation, considering innovative approaches, such as partnerships, certifications and incentives.
5. Quantify and document changes in the quality of participation; adjust strategies if necessary.

Recycling collection bins in public places increase diversion

A girl recycles an aluminum can properly

The Result

These actions will help us identify barriers to quality participation and most importantly, strategies to address these barriers. Working with communities, we can increase the quality of participation across all customer types. As a whole, we will waste less because more people, businesses and agencies will be active participants in the materials management system.

CULTURE

We are a community of invested, active participants working together to reduce waste.

OBJECTIVE C-6

Education and Public Outreach | Our community demonstrates an increased working knowledge of how individual behaviors and choices affect the system and the world around us (2018–2020).

The Challenge

Every day we make choices affecting the materials management system and the world around us. Some of these choices may be seemingly simple, like where to discard a plastic bottle. Other choices are more complex, like whether to purchase organic produce or to buy clothes made overseas. These decisions may ask people to consider concepts, such as the economic, social and environmental impacts of materials and goods. The complexity and size of the global market makes it challenging for people to understand how their behaviors affect the materials management system and the world around us. A working knowledge of where our waste goes, what it means to divert waste and the impacts of our consumer choices is key to making informed decisions about the things we buy (or don't buy) and what to do with these items after we've used them. Without this knowledge, people cannot be fully invested, active participants working to reduce waste.

Actions

1. Quantify the current working knowledge of materials management system's components and values for all customer types.
2. Research and identify best practices for educating about system components and values.
3. Develop and implement an education and outreach strategy to build an awareness and appreciation of the materials management system components, values, cost and benefits within the context of local and global ecosystems.
4. Measure the change in customer knowledge of materials management system components and values for all customer types.

Outreach informs the public about proper waste sorting

Students learn about natural resource conservation

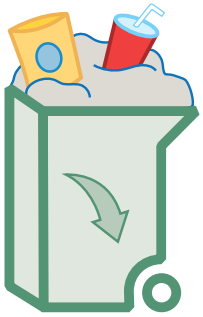
The Result

The education and outreach highlighted in the actions above will result in people working together to increase awareness, understanding and stewardship (action). When people understand the impact of their actions on the materials management system and see the personal connection to their life, they will become more invested in the system and better stewards of the materials they use.

DECISIONS

Decisions are practical, understandable and transparent, providing opportunities for innovation while balancing economic, environmental and societal impacts.

RECYCLING



DISPOSAL

COMPOST

DECISIONS

Decisions are practical, understandable and transparent, providing opportunities for innovation while balancing economic, environmental and societal impacts.

OBJECTIVE D-1

Administration | Pierce County and the City of Tacoma develop and implement formal partnership strategies designed to strengthen connections with agencies, for-profit companies and not-for-profit organizations that share in the goals and vision established in this plan (e.g., partnering with the Pierce Conservation District) (2016–2017).

The Challenge

We have a history of partnering with agencies, for-profit companies and not-for-profit organizations, however, we lack formal strategies providing criteria to guide our partnership decisions. Without partnership strategies, we may overlook important partnerships that could advance the work of the Solid Waste Management Plan. We also run the risk of partnering with entities that do not share the same vision for the materials management system.

Actions

1. Draft criteria to be used to evaluate how an outside agency, company, or not-for-profit organization can demonstrate it shares in the goals and vision established in the Plan.
2. Review draft criteria with the Solid Waste Advisory Committee and edit as appropriate.
3. Identify existing partnerships, evaluate according to revised criteria and edit as appropriate.
4. Finalize and publish criteria to evaluate future partnership opportunities.

The Solid Waste Advisory Committee guides Pierce County's solid waste decisions

The Result

Partnerships are key in advancing the goals of the Plan. With formal partnership strategies, we will have the structure in place to ensure we are partnering with the right agencies, companies and organizations and allocating our resources for productive collaborations.

Partners help accomplish our goals and vision

DECISIONS

Decisions are practical, understandable and transparent, providing opportunities for innovation while balancing economic, environmental and societal impacts.

OBJECTIVE D-2

Waste Diversion | Pierce County and the City of Tacoma develop, document and implement strategies for deciding what materials are diverted and how they move through the materials management system (2017–2018).

The Challenge

Currently, we do not have formal, documented strategies for deciding what materials are targeted for waste diversion. Without clear strategies, we are at risk of making materials diversion decisions that have not been fully researched and do not consider all impacts.

Actions

1. Research and document current waste diversion practices.
2. Identify stakeholders and interested residents and develop engagement strategies.
3. Review current practices, understand challenges (including challenges processing materials currently on the list of "designated recyclables") and identify waste diversion opportunities, incorporating information gained from work on Objective M-1.
4. Develop and adopt materials selection/removal strategies (e.g., feasibility analysis, decision-making thresholds, coordination with service providers and outreach best practices).

The Result

These strategies will outline a process for selecting specific materials that should be added to or potentially removed from the diversion stream. Formal strategies will lead to better, consistent and sustainable decision-making. Strategies will not include how diversion will be measured (see M-2).

Glass containers are collected separately for recycling

Cardboard is sorted at a materials recovery facility

DECISIONS

Decisions are practical, understandable and transparent, providing opportunities for innovation while balancing economic, environmental and societal impacts.

OBJECTIVE D-3

Waste Reduction | Pierce County and the City of Tacoma develop, document and implement strategies for deciding what materials are targeted for waste reduction (2017–2018).

The Challenge

Currently, we do not have formal, documented strategies for determining what materials are targeted for waste reduction. Without clear strategies, we are at risk of making decisions that have not been thoroughly vetted for their potential benefits and impacts.

Actions

1. Research and document current waste reduction practices.
2. Identify stakeholders and interested residents and develop engagement strategies.
3. Review current practices, understand challenges and identify waste reduction opportunities.
4. Develop and adopt strategies to target items for waste reduction campaigns (e.g., feasibility analysis, decision-making thresholds, coordination with service providers and outreach best practices).

Strategies are created with input from customers and stakeholders

Styrofoam is collected separately at a transfer facility in Tacoma

The Result

These strategies will outline a process for selecting specific materials that should be reduced or potentially eliminated from the waste stream, ensuring thoughtful, practical and innovative waste reduction decisions before the next steps occur.

DECISIONS

Decisions are practical, understandable and transparent, providing opportunities for innovation while balancing economic, environmental and societal impacts.

OBJECTIVE D-4

Administration | Pierce County Public Works evaluates whether there are barriers to designing and locating the materials management infrastructure required to implement the Solid Waste Management Plan (2017–2020).

The Challenge

We do not have a thorough understanding of the barriers to permitting, construction and use of facilities that may be required to implement the Plan. To meet the requirements of the Plan, Pierce County may need to expand existing or site new facilities (e.g., anaerobic digesters). An evaluation of these barriers will help us to identify and prioritize potential solutions.

Actions

1. Complete a review of relevant community and comprehensive land use plans to identify regulations/policies which provide barriers to the locating of materials management facilities.
2. Document where various types of materials management facilities are permitted, restricted and/or prohibited.
3. Identify whether current regulatory systems preclude the designing and permitting of particular types of materials management facilities (e.g., anaerobic digesters).
4. Decide if the barriers to locating future facilities need to be addressed. If so, develop and implement a prioritized work plan.

A compost facility in Purdy receives organic waste

An anaerobic digester at the Chambers Creek Regional Wastewater Treatment Plant is used for breaking down organic material

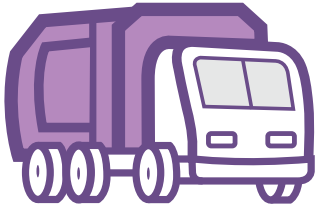
The Result

This analysis will help ensure that we have adequate facilities and capacities to accommodate current and future customers while meeting the requirements of the Plan. This evaluation will identify barriers that would prevent us from permitting, constructing and/or using needed facilities. No zoning changes would occur as part of this objective, but necessary zoning changes may be identified.

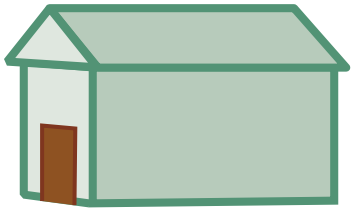
MEASUREMENT

Actions, programs and services are measured and evaluated for effectiveness and efficiency.

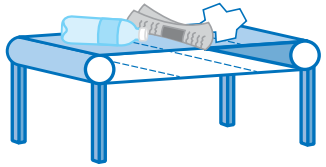
WASTE REDUCTION



COLLECTION



TRANSFER STATION



RECYCLING SORTING FACILITY

MEASUREMENT

Actions, programs and services are measured and evaluated for effectiveness and efficiency.

OBJECTIVE M-1

Administration | Significant materials management practices are evaluated for **sustainability** (2016–2019).

Sustainability

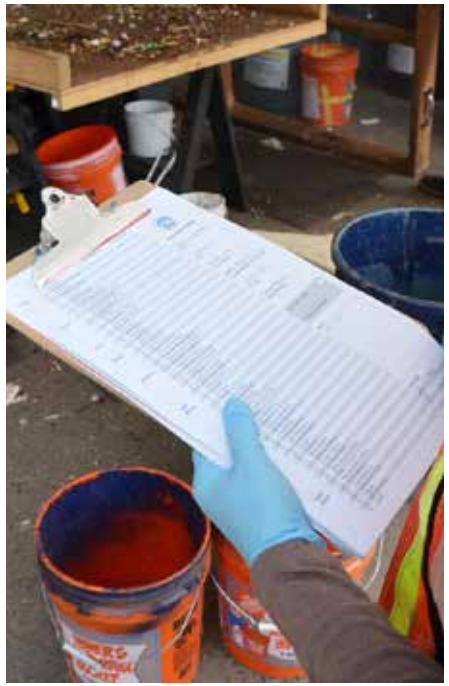
Considers all factors that might affect maintainability, such as economics, efficiency, equitability, effectiveness and environment.

The Challenge

Pierce County has not evaluated all materials management practices to ensure that they are sustainable. Some practices have been in place for a long time and need to be reviewed to ensure they suit the current condition of the county. Without a formal evaluation, we may be missing opportunities to be more efficient and sustainable.

Actions

1. Create a prioritized list of the materials management practices to be evaluated.
2. Develop and use a screening tool (i.e., a set of criteria) to assess and quantify the sustainability of our practices.
3. Develop recommendations based on the evaluations.
4. Incorporate recommendations into future decisions.



Staff evaluate current practices

The Result

With formal sustainability criteria, we will be able to assess and improve all significant materials management practices. This will lead to developing new practices and enhancing current practices that improve the overall efficiency of our materials management system.

MEASUREMENT

Actions, programs and services are measured and evaluated for effectiveness and efficiency.

OBJECTIVE M-2

Waste Diversion | Pierce County and the City of Tacoma have established waste diversion targets based on recycling stream and other relevant data (2017–2019).

The Challenge

We do not have established targets for waste diversion. Without targets, we cannot assess our progress towards reducing contamination and increasing materials diverted from the waste stream.

Actions

1. Analyze recycling stream data to develop current baselines.
2. Use the waste diversion strategy (see D-2) to determine what materials are diverted and how they move through the materials management system.
3. Establish diversion targets.
4. Evaluate recycling stream data annually.

Paper falls off the sorting line at a materials recovery facility

Diverted materials are bailed and shipped to recycling facilities

The Result

Established targets will allow us to track our progress towards improving waste diversion rates and reducing contamination. With increased diversion from the waste stream, we will increase the materials management system's overall sustainability. D-2 outlines a strategy for deciding what materials will be targeted for diversion. The targets described in this objective are the numerical amounts of each material we aim to divert.

MEASUREMENT

Actions, programs and services are measured and evaluated for effectiveness and efficiency.

OBJECTIVE M-3

Waste Reduction | Pierce County and the City of Tacoma have established waste reduction targets based on waste trends analysis and other relevant data (2017–2019).

The Challenge

Currently, we do not have annual and long-term materials reduction targets. Without targets, we cannot measure progress towards our waste reduction goals. These targets need to be determined strategically, based on waste trends analysis and other relevant data.

Actions

1. Identify existing baselines using waste trends analysis data.
2. Use the waste reduction strategy (see D-3) to determine which materials will be targeted for reduction.
3. Establish reduction targets.
4. Perform a waste trends analysis periodically to evaluate progress towards the reduction targets.

Recyclables are sorted at a materials recovery facility

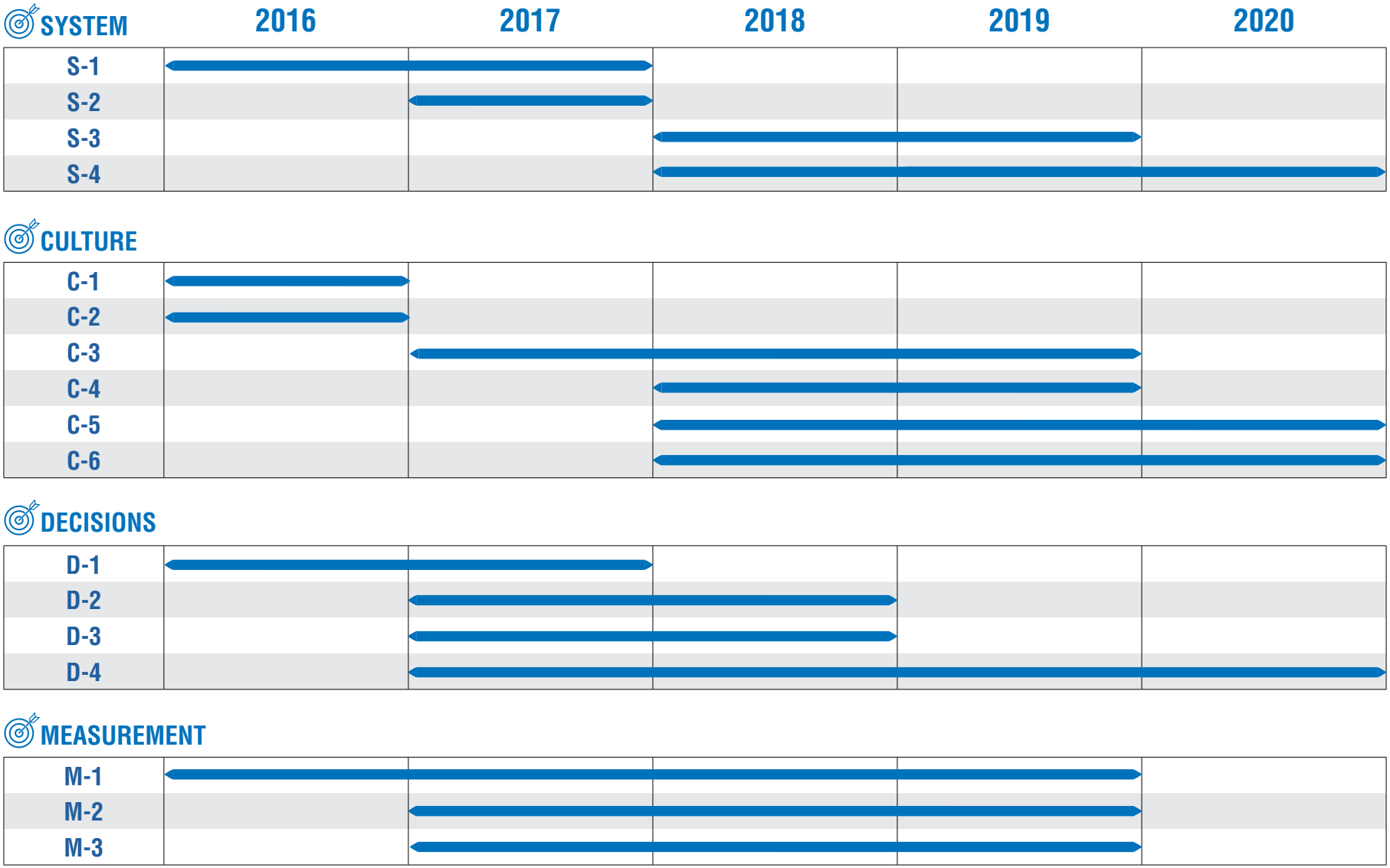
Staff conduct a waste trends analysis to identify commonly disposed items

The Result

Clearly defined targets are required for us to be able to measure what we manage. Materials reduction targets will help us measure the success of our waste reduction programs and quantify our progress towards reducing waste. D-3 outlines a strategy for deciding what materials will be targeted for reduction. The targets described in this objective will provide quantities for each material we aim to reduce.

IMPLEMENTATION

We aim to accomplish all of the objectives outlined in this supplement by the end of 2020. Work on some objectives will begin immediately, while work on others will start over the next few years. Below is the planned timing of this work. These dates are approximate and may shift.



OUR SYSTEMS AND PROGRAMS

AGENCIES AND ORGANIZATIONS

THREE MANAGEMENT SYSTEMS

The 2000 Plan was adopted by Pierce County, the City of Tacoma and all cities and towns. After adopting the Plan, cities and towns then entered into interlocal agreements with the County for planning and management services with Ruston arranging disposal services through Tacoma.

Both the Pierce County Council and the Tacoma City Council will adopt this supplement. The cities and towns will concur with the changes through a resolution or letter of concurrence.

The County and Tacoma coordinate activities with the military system, which has a separate plan.

City of Tacoma

The City's *Solid Waste Utility* provides solid waste management services under the direction of the Tacoma City Council for all residents and businesses within city limits. The *Town of Ruston* has its own collection system but has an agreement with Tacoma for disposal through the Tacoma management system. In this document it is referred to as the Tacoma system.

Pierce County

The *Pierce County Public Works Department*, *Sustainable Resources Division*, is the Pierce County government agency charged with solid waste and recycling planning for the Pierce County management system. This system serves the unincorporated areas of the county and cities and towns which have interlocal agreements to participate in the County's disposal system. This is referred to as the County system. (Note: while having territory and population within Pierce County, the cities of Auburn and Pacific are wholly in the King County solid waste system. The City of Enumclaw also has territory, but no population in Pierce County, and is also in the King County system. Conversely, the King County portion of Milton is in the Pierce County system.)

Military

Joint Base Lewis McChord (JBLM) has its own solid waste system and solid waste management plan. This is referred to as the JBLM system.

Tacoma-Pierce County Health Department **(TPCHD)**

This agency, which is separate from County government, administers the solid waste permit process to ensure all solid waste handling activities comply with state and local codes and ordinances. It is referred to as the Health Department.

Pierce County Solid Waste Advisory Committee **(SWAC)** This is the citizen committee charged with advising the *Pierce County Executive* and *Pierce County Council* on waste policies and programs. It is referred to as the SWAC.

Washington Department of Ecology

This state agency is responsible for final approval of the Plan and this supplement, state waste regulations and the state solid and hazardous waste management plan. It is sometimes referred to as Ecology. Moving Washington Beyond Waste and Toxics is Washington's 2015 Solid Waste Management Plan revision with long-term strategies to systematically reduce waste and use of toxic substances.

WASTE REDUCTION

Waste reduction is defined as actions taken before waste is generated to either reduce or completely prevent the generation of waste. Some further divide this term into categories, such as waste prevention, avoidance and minimization. In this document, the term reduction includes all these other categories.

From a waste management perspective, waste reduction is one of the most effective ways to address waste issues. If everyone works together to reduce the amount of waste generated, we can decrease our need for costly disposal and recycling facilities, collection programs and special programs to divert toxic or hard-to-handle materials.

There are many ways to reduce waste. One of the simplest solutions is to avoid disposable items by using durable products, such as reusable travel mugs and cloth shopping bags. Another technique is to purchase products that have less packaging. For instance, avoid individually wrapped or single serve items. Unsubscribing from printed catalogues and mail advertisements is another effective waste reduction strategy. Learn more tips for reducing waste on the *Pierce County website*.

Manufacturers can minimize waste through product design, using less packaging and making products more durable and/or designed for recycling. Designing products in a way that minimizes long term environmental impacts of the product is becoming increasingly prevalent. These principles are often termed Product Stewardship or Extended Producer Responsibility. Learn more about this in the Emerging Issues and Future Considerations section of the document.

EXISTING PROGRAMS

- Product Stewardship
- Community/commercial programs
- Education and outreach programs
- Internal sustainability plans
- *Gleaning Project*

EXISTING SHARING PROGRAMS

- Libraries
- Equipment rental businesses
- Buy Nothing Facebook groups

WASTE DIVERSION

Waste diversion keeps materials out of the landfill through reuse, recycling and composting organics, but still requires energy and resources. Waste diversion is a better option than landfill, but reducing waste at its source is even better.

REUSE

The reuse of products is an important waste diversion strategy. Reusing products can be divided into five categories:

- **Conventional reuse**—Reusing goods through thrift stores such as the Salvation Army and Goodwill
- **Creative reuse**—Reusing materials for arts and craft
- **Construction and demolition reuse**—Materials can be reused in a variety of ways, such as for furniture or architectural creativity
- **Adaptive reuse**—Reusing existing buildings for other purposes
- **Refurbish and repair**—Fixing older furniture, appliances and other electronic equipment so they can continue to be used

The City of Tacoma and Pierce County do not directly provide reuse services. This creates opportunities for our businesses and residents to connect with those who do provide such services.

RECYCLING

The City of Tacoma and Pierce County identify materials that are good candidates for recycling. Not every material that can be recycled is recycled. There may not be viable markets for the material, collection may be too complicated, expensive or the value of the material may not justify its collection and processing costs. The decision to recycle a material must consider economic, environmental and societal impacts.

Both the City of Tacoma and the private haulers providing service to the rest of the county have a commingled recycling system. Recyclable materials can be placed in one container (commingled) at a residence, business or other commercial establishment, such as a school or hospital. The recyclables are transported to a materials recovery facility (MRF) where a combination of hand and mechanical sorting separates the different materials. They are then baled and transported to manufacturing plants.

The County experienced a tremendous increase in the amount of material to be recycled when the City of Tacoma and Pierce County transitioned to a commingled recycling system. Customers recycled more material as a result of the convenience (i.e., being able to throw the recyclables into one container rather than having to separate the different materials into different recycling containers).

This convenience came with a slight cost. In the commingled recycling system, certain recyclable materials, such as plastic bags and glass containers, caused problems at the MRF. The City of Tacoma now requests customers to bundle plastic bags before placing them in the commingled recycling container, and collects glass bottles and jars in a separate container. In the rest of Pierce County, plastic bags and glass containers are not included in the commingled recycling system. Drop-off sites, where other materials including glass containers can be recycled, have been established around the county.

DESIGNATED RECYCLABLES

- Plastic containers
- Paper and cardboard
- Aluminum and tin cans
- Glass*
- Construction/demolition debris*

*not part of the commingled system

EXISTING PROGRAMS

- Single-cart recycling program
- School recycling programs
- Event recycling
- Multifamily recycling program
- Commercial recycling program
- *Recycling drop-off sites*

CHALLENGING MATERIALS

MRFs are responsible for rapidly and accurately sorting high volumes of recyclable material. Most MRFs begin with machinery that separates two-dimensional objects (flat things like paper and cardboard) from three-dimensional objects (containers), then various other technologies and pieces of equipment distinguish and separate the many different kinds of containers. Some materials are problematic for current mechanical and hand sorting processes.

Shredded Paper

Today's cross-cut shredders make most shredded paper too small to be accurately sorted at the MRF. Shredded paper usually ends up on the sorting facility floor along with dirt, broken glass and other small things to be taken away to the landfill as garbage. Even when shredded paper is placed in a paper bag with the top rolled or stapled down (the recommended way for commingled recycling), there is a good chance the bag will rip during collection and processing and the shredded paper will not remain together.

In 2016, Pierce County released a Request for Proposal from qualified vendors to provide community shredding events. If shredding events prove to be viable for capturing paper fiber, cost effective to the County, and are embraced by the community, the County may consider removing shredded paper from the list of "designated" recyclables collected in the commingled program.

Glass

Glass containers are a well-known contaminant in any commingled recycling system because they break during collection and processing. The shards of broken glass get mixed in with other recyclables, especially paper. Abrasive, glass-contaminated paper causes equipment at pulp mills to wear out faster, adding to the cost of mill operations. Pulp mills on the West Coast, already struggling to stay in business, are unwilling to purchase paper bales from MRFs that process materials from jurisdictions that accept glass containers in their commingled recycling program.

The City of Tacoma and Pierce County do not allow glass containers in the commingled recycling carts, but the MRFs processing these

Minimum level of service ordinances

Pierce County has established minimum levels of service for residential curbside recycling and yard waste collection. These levels of service must be provided by solid waste collection companies operating in unincorporated portions of the county. To learn more about the minimum levels of service, view the ordinances.

The sorting equipment is filled with plastic bags. Twice a day employees have to shut down the entire system so they can crawl onto the screen and use knives to cut away the plastic (Waste Connections)

recyclables also receive materials from other jurisdictions that include glass in their programs. Mixed paper bales from the City and County programs are therefore exported to Asian markets. Glass is infinitely recyclable but just like any other commodity there needs to be market demand for it. There are limited glass-to-glass recycling markets so much of the glass collected is targeted for beneficial reuse as concrete aggregate.

Plastic Bags and Other Plastic Film

Plastic bags and other plastic films are some of the most problematic materials to go through the sorting process because they can wrap around the mechanical equipment, reducing its effectiveness to sort different materials. They can bind so tightly they cut into the metal equipment and cause damage. To help address the problematic nature of plastic bags, the City of Tacoma recommends customers put their plastic bags into one bag, making them bulky clumps that can be more easily removed at the beginning of the sort line.

Plastic Lids and Caps

Due to their size, plastic caps and small lids usually wind up on the floor of the MRFs with the shredded paper, broken glass and other small objects that are taken to the landfill. The large lids (e.g., large yogurt tub lids) often get mistakenly sorted into the bales of mixed paper because they are two-dimensional. They become contaminants and a yield loss (i.e., the percentage of a bale that is not the correct material) to any pulp mill receiving these bales. For these reasons, Pierce County has not included caps and lids on the list of designated recyclables.

As a solution to both the yield loss problem and the abundance of plastic resin being swept off the floor and into the garbage bin, some recycling programs in the U.S. started recommending the caps be left on plastic bottles. While there have been some concerns the air inside a capped bottle can become pressurized when baled, causing the bottle to explode and create a safety hazard, bale management and on-floor safety protocols can address that rare occurrence.

Of greater concern has been the sink/float system used at manufacturing plants to distinguish different types of plastic. This system can be “confused” by the presence of bottle caps containing the additive calcium carbonate. Caps with a high amount of calcium carbonate sink, rather than float, leading to misidentification and creating another yield loss problem.

The plastics industry reported at the 2016 Washington State Recycling Association conference that it has adopted standards limiting calcium carbonate content so as to prevent misidentification. Pierce County will monitor this situation and if end users become more receptive to receiving bottles with caps, the County will consider modifications to the designated recyclables list.

Thin Plastic Containers and Trays

Like large plastic lids that can get improperly sorted as paper, thin plastic clam-shell containers (e.g., salad, strawberry, muffin containers) can also cause problems. Often these containers will get crushed during collection and will be improperly sorted with the paper. Fruit and vegetable trays which are already flat, are also frequently sorted incorrectly.

Bulky Plastics

Bulky plastics, typically made with polypropylene (PP), include items such as rigid children’s wading pools, lawn furniture, crates, storage containers and laundry baskets. With improvements in technology, PP has become a valuable plastic to recycle. Unfortunately, these items are too large to fit into most recycling containers and they often end up in landfills.

Carton Packaging

Carton (paper) packaging fits into two categories, gable-topped containers (i.e., quart and half-gallon milk/juice containers) and aseptic containers (i.e., rectangular-shaped packaging allowing items such as juices, milk, broths and soups to be shelf-stable and non-refrigerated). These containers are problematic because there are multiple materials in the packaging. A plastic polyethylene (PE) coating surrounds the paper gable-topped cartons, and a third material, an aluminum liner, is included in aseptic packaging. Only a handful of manufacturing facilities around the U.S. can separate and reuse the plastic, paper and aluminum portions of these packages.

ORGANICS MANAGEMENT

Historic waste characterization studies have shown that organic materials (those suitable for composting or anaerobic digestion) can make up more than 50 percent of what is disposed in a landfill. This portion of the waste stream is diverse, ranging from things that were very recently grown such as yard waste, food waste and land-clearing debris to products many steps removed from the field and forest such as paper, textiles and wood building materials.

Diverting organics through composting has the potential to maximize recovery of materials from the municipal waste stream. Compost has many beneficial uses, such as amending soil structure and providing some essential nutrients, holding moisture and mitigating or offsetting environmental harm caused by petroleum contaminants in stormwater or carbon dioxide released by vehicle exhaust. There is also potential for diverting and using more organic materials to produce alternative fuels or energy.

An important challenge is matching the right part of the organics stream to the right technology. Studies, such as *Pierce County's Food Waste Best Management Practices Study*, explored the difference between organics compatible with existing composting technologies and those which were incompatible or which could be handled only with greater cost and/or community impact. Allowing other types of organics into existing City of Tacoma and Pierce County composting programs has the potential to degrade the quality of finished compost now being produced.

Other organics such as food-stained or wet paper, and perhaps some types of wood waste, are more suitable for recovery of energy and nutrients through anaerobic digestion technologies, although these have not been used in Pierce County except in pilot projects.

Existing Programs

- *Pierce County Yard Waste Collection*
- *City of Tacoma Food and Yard Waste Collection*

PUBLIC OUTREACH

Both Pierce County and the City of Tacoma support outreach programs to inform and engage with residents around waste reduction programs and materials management services. Other agencies treat education and outreach as synonyms. In Pierce County, however, public outreach and environmental education are two distinct programs.

Public outreach provides an introduction to the topics surrounding the materials management system. Outreach is the first step towards building awareness and a community of active and invested participants. Awareness is the foundation for the critical thinking skills developed in environmental education.

PUBLIC OUTREACH IN PIERCE COUNTY

Pierce County has a history of strong and effective public outreach dating back to the first curbside recycling program established in 1990 (Green House, single-cart and food waste best management practices). Messages about recycling across the country have been simplified to encourage participation—but people aren't connected to the realities of recycling and resource management. We recognize that one size of message doesn't fit all, so we work to tailor our messages so they're appropriate for each audience. We also consider outreach methods beyond the traditional booth at a community event, such as mobile or pop-up exhibits at farmers markets, libraries and sporting events.

CORE OUTREACH METHODS

Newsletter

The *Earth Matters newsletter* is published twice a year, in April and November. It is sent to all residential addresses (single family and multifamily) in Pierce County, except for Tacoma, Ruston, Auburn and JBLM. The newsletter allows us to tell our story to the majority of our residents. Each edition is sent to 240,000 households. A 2014 outreach survey showed that 97 percent of respondents open the newsletter and look at it when they receive it. We use the newsletter to promote our programs and to regularly reinforce our messages, like the recycling reminders list.

Website

Our goal for the website is for visitors to be able to find the information they are looking for quickly and without frustration. Analytical data tells us the majority of visitors to our website find our information by using search engines and permalinks.

Pierce County displays informational material at the Puyallup farmers market

Recycling reminder sheets are available on the Pierce County website

Fairs and Events

No other outreach method can compete with the value of face-to-face discussions with our residents. We attend numerous community events, fairs and farmers markets each year. We also look for innovative ways to interact with our residents.

Public Meetings and Virtual Workshops

We want to engage our residents in the programs we develop and the process of government. Public meetings are a great way to bring people together and to hear from our residents about what is important to them. Virtual workshops that gather feedback through online surveys can engage residents who aren't interested in participating in-person or can't attend traditional public meetings.

ENVIRONMENTAL EDUCATION

Pierce County and the City of Tacoma provide environmental education (EE) programs that increase public awareness and knowledge about environmental issues, and provide participants the skills necessary to make informed environmental decisions and take responsible actions. EE is based on objective and scientifically-sound information and does not advocate a particular viewpoint or a particular course of action. EE programs promote lifelong learning and reach all age groups, from very young children through senior citizens. EE includes both outdoor and in-classroom education, in both formal and informal settings.

Environmental Education teaches individuals how to weigh various sides of an issue through critical thinking, problem solving and decision-making skills on environmental topics. EE is a continuum covering the range of steps and activities, from awareness to action, with an ultimate goal of environmental stewardship. Stewardship refers to an acceptance of personal responsibility for actions to improve environmental quality and to achieve sustainable outcomes. Stewardship involves lifestyles, business practices, initiatives and actions that enhance the state of the environment. EE is a critical component of an effective materials management system. We will be successful in achieving our objectives, goals and vision only when our customers both understand the system and are engaged, active participants.

Pierce County and the City of Tacoma's teams of environmental educators work to cultivate relationships between communities and the environment. They provide the knowledge, tools and connections necessary for people to work, play and learn together. We believe that nurturing curiosity, developing skills to answer questions, a strong sense of self, and the ability to lead are critical to creating a vibrant, healthy and engaged community. We want to create lifelong, practical learning skills. We also believe the best techniques to make this happen are through integrated, hands-on activities and inquiry-based education.

Environmental Education Continuum

EXISTING PROGRAMS

K-12 Academic Program

Pierce County's four environmental educators offer free programs in all of the school districts in Pierce County (except in the City of Tacoma). The environmental education program consists of a set of lessons and a community action project. Programs are customized for teachers based on what their students are learning.

Lessons fall under three main themes, each with several objectives and activities for each grade. Some examples are:

- Resource conservation and recycling
- Composting and gardening
- Water conservation and consumption

Community Action Projects

Also known as Service Learning Projects, community action projects are an essential component to our programs because they support deeper learning through opportunities to apply classroom knowledge to practical and real community settings. Service learning projects also provide opportunities to develop civic engagement skills by working with community members.

Students take action to help their school reduce waste

Sustainability workshop participants make non-toxic cleaners

Community Programs

These programs are free and available to members of the community who are ready to be involved in actions to better the environment. Educational programs and project assistance are available to all Pierce County volunteer groups, teams, clubs or societies with an interest in initiating environmental progress in their community.

We offer a variety of classes designed to provide the tools and knowledge needed for creating and living a more environmentally sustainable lifestyle. Classes are offered on a regular basis throughout the county or can be requested. Any of the classes may be customized to fit the needs of a group.

Workshop themes are:

- Composting
- Green cleaning
- Recycling and waste reduction
- Toxics reduction
- Water conservation
- Water protection
- Earth-friendly art

SOLID WASTE COLLECTION

The City of Tacoma and Pierce County work to provide solid waste collection services for all customers. The City of Tacoma has the exclusive right to collect garbage from residents within the City's corporate limits. In the residential sector, garbage service is mandatory. Solid waste collection service in the rest of the county is performed by private hauling companies. These companies have exclusive rights in their service areas to collect residential and commercial garbage and residential recycling through contracts with local cities and towns, and through permits issued by the Washington Utilities and Transportation Commission (WUTC). Commercial recycling is a free market system, meaning all permitted companies can compete to provide recycling service to any business.

Since 1943, the Washington Legislature has granted cities and towns the authority to require all residents and businesses to participate in a city-mandated waste collection and disposal system. In 1989, the Legislature expanded this authority to include the collection of recyclables. Cities and towns implement this authority through their municipal or contracted collection programs. For those cities which neither provide collection itself or through contract, the Washington Utilities and Transportation Commission would be responsible for ensuring that the state certificated hauler serving the city follows the mandatory service and subscription ordinance. For more information, see RCW 35.21.130 and RCW 35A.21.060.

LeMay Enterprise hauler collects curbside recycling and garbage

Service Provider	Address	Permit Id	Accounts Served
American Disposal	PO Box 399 Puyallup, WA 98371	G-87	17,579
DM Disposal/ Recycling	PO Box 399 Puyallup, WA 98371	N/A	23,520
LeMay Enterprises	4111 192nd St E Tacoma, WA 98446	G-98	72,979
Murrey's Disposal	PO Box 399 Puyallup, WA 98371	G-9	33,783
University Place Refuse	2815 Rochester St. W University Pl., WA 98466	N/A	13,646
City of Tacoma	747 Market Street Tacoma, WA 98402	N/A	58,500
Town of Ruston	5117 N Winnifred St Ruston, WA 98407	N/A	364

Counties do not have this direct authority. In order to mandate subscription to a collection service, counties must first form a "solid waste collection district" upon a finding that "mandatory solid waste collection is in the public interest *and necessary for the preservation of public health*." (emphasis added, see RCW 36.58A.030). In addition, the WUTC is empowered to review the request and has 60 days to determine whether or not the incumbent state certificated hauler is able and willing to provide the service. Of note, through separate authority mentioned in RCW 36.58, counties are allowed to set minimum levels of service for recyclables collection.

A quick comparison of subscription statistics provided by the hauling companies and housing statistics available from the state show that between 15 and 20 percent of single-family and mobile-home households eligible to be on garbage service elect not to participate. From the standpoints of equity and efficiency, the County would like to consider—and solicit public input—on common subscription and service levels for unincorporated Pierce County. Granting counties authority similar to that found in RCW 35.21.130 would be one path to giving the Pierce County Council a level of decision-making in unincorporated areas comparable to what a city or town council has in incorporated areas.

The County will need to carefully consider the impacts, costs and benefits of a mandatory subscription program. Analysis will be necessary to determine whether a universal mandate is appropriate (i.e., all properties must subscribe to a minimum service level) or whether mandates limited to specific geographic areas (e.g., urban) or classes of service (e.g., residential) are best. Other questions that would need to be explored include: could customers be exempted because of road/driveway access issues? Would mandatory service impact illegal dumping? Would it be appropriate to explore the addition of subsidized "lifeline" fees for low income customers? Local regulations could also address acceptable methods for storing waste materials prior to collection.

Recycling collection bins are available at the transfer station

TRANSFER AND DISPOSAL

Transfer stations are facilities where solid waste is unloaded from collection vehicles or private vehicles and reloaded into larger vehicles for shipment to a landfill or other processing facility. By combining the loads of several individual waste collection trucks or private self-haulers into a single shipment, companies and jurisdictions managing solid waste save money on the labor and operating costs of transporting waste to a distant disposal site. This can reduce the total number of vehicular trips traveling to and from the disposal site and reduce the associated environmental footprint.

From the transfer stations, materials are taken to a municipal solid waste landfill, material recycling facility or compost facility. Please refer to the 2000 Tacoma-Pierce County Solid Waste Management Plan and its 2008 Supplement for detailed histories of the Pierce County and Tacoma solid waste systems.

EXISTING PROGRAMS

In Tacoma and Pierce County, transfer stations are the primary facilities open and available to the public. One transfer station is owned and operated by the City of Tacoma, one is owned and operated by Pierce County Recycling Composting and Disposal LLC d/b/a LRI (LRI), and four stations are owned by Pierce County and operated by LRI. Under long-term direction of the Tacoma-Pierce County Solid Waste Management Plan, recycling and yard waste drop-off services are provided at all solid waste transfer stations for those who self-haul their materials.

Based on available transfer capacity and decreasing volumes of MSW, capacity for MSW transfer exceeds

the needs at this time. Growth in outlying areas served by smaller facilities may increase the need for capacity in very specific areas; however, that will not be needed in the foreseeable future.

Whether received at transfer stations by self-haulers or hauling company vehicles, all MSW requiring final disposal is currently transported to the LRI Landfill. Tacoma and Pierce County separately contract with LRI for this service. Consistent with permit restrictions, direct self-haul to the LRI Landfill is available only for commercial customers delivering large quantities of waste. In the event the LRI Landfill is not available, Tacoma and Pierce County have contractual provisions with LRI to access other landfills –including the Finley Buttes Landfill in eastern Oregon owned by Waste Connections, LRI's corporate parent.

Private haulers in Pierce County also operate transfer stations to consolidate loads and increase the efficiency of the haulers' collection programs. Those facilities are not open to the public. There are also other facilities designed to accept and transfer specific waste streams such as yard waste.

SPECIAL WASTES

Special wastes are non-liquid wastes with special collection, handling and disposal requirements not generally part of the mixed municipal solid waste stream. Typically, special wastes is a catch-all category often used to describe historically hard-to-handle materials. Materials can sometimes be considered both a special waste and solid waste, meaning they are handled at the same permitted disposal facilities.

Some typical wastes that have been considered special wastes include contaminated soils, street sweeping residue, waste from cleaning manholes and storm drains, sludges, boiler or incinerator ash and many industrial wastes. Many of these special wastes require a characterization process to determine if they are suitable to dispose as a solid waste. The primary focus of the additional characterization is to ensure the material is not a regulated hazardous or dangerous waste. Once the material is deemed acceptable to handle in the solid waste system, it is often necessary to employ special handling methods because the materials are difficult to handle.

EXISTING PROGRAMS

In Pierce County, special wastes are regulated by both the Department of Ecology and the Tacoma-Pierce County Health Department (TPCHD). The Department of Ecology is responsible for enforcing hazardous waste regulations in Washington. In most cases, generators or transporters of special wastes will work with TPCHD. TPCHD has regulatory and review processes to ensure a proper characterization of the materials has been performed, and the material is acceptable for disposal at facilities permitted in Pierce County. This process is part of the *Waste Disposal Authorization* (WDA) program. The WDA program is codified in TPCHD regulations and in the operating permits of the solid waste facilities in Pierce County.

TPCHD works on WDAs throughout the year. The majority of those authorizations are for special wastes disposed at the LRI Landfill. In 2014, the TPCHD issued 86 new WDAs and renewed 30. The TPCHD amended 25 WDAs in 2014. The yearly WDA activity for the TPCHD was similar for 2013 and 2014. The number of new WDAs issued in 2013 and 2014 respectively were higher than in the previous four years.

DISPOSAL AND PROCESSING FACILITIES

The majority of the wastes allowed by the WDA program in Pierce County go to the LRI Landfill. In 2014, 261,718 tons of special wastes were disposed at the LRI Landfill under the authority of the WDA program. Approximately 73 percent of the special wastes disposed at the LRI Landfill under the WDA program were contaminated soils. The next largest component was mill waste from a local Kraft mill.

ADMINISTRATION

As described in much more detail in the 2000 Plan, Pierce County privatized its waste disposal system in 1977 when four local waste haulers purchased the Hidden Valley Landfill the County had been operating (but never owned) for at least a decade. At the same time, the County contracted with the consortium of haulers to operate county-owned transfer sites.

With the private sector running facilities, the Tacoma-Pierce County Health Department managing environmental controls, and the County having no state-authorized role in waste collection, it wasn't until the late 1980s that Pierce County formed an agency to manage waste.

EXISTING PROGRAMS

- Waste Trends Analysis
- Public Works Department Strategic Plan
- Customer Service, Asset Management and System Sustainability Program
- Environmental Management System
- Six-year financial planning

The Solid Waste Advisory Committee helps Pierce County administer its programs

CODE ENFORCEMENT

Differing from most counties in Washington, Pierce County hosts a code enforcement program within its solid waste management agency. The *Code Enforcement section of Public Works* receives and investigates complaints, provides technical assistance to property owners and organizes community-based solutions for code enforcement in unincorporated Pierce County.

The Code Enforcement Section is charged with enforcing *Development Regulations* (including zoning, setbacks, and occupied RVs), Shorelines Regulations, the Sign Code and the Public Nuisance (Junk) Vehicle Code in unincorporated Pierce County.

A central complaint intake program, Pierce County Responds, receives and forwards complaints to the *Planning and Land Services Department* concerning: the Building Code (including Property Maintenance standards), Hearing Examiners conditions, critical area codes, and fill and grade violations. Complaints about illegal dumping were being sent to the Tacoma-Pierce County Health Department through 2016. Complaints about signs or dumping in the public right-of-way go to the Road Operations Division of Public Works. Complaints about vehicles abandoned on the public right-of-way are sent to the Sheriff.

The Code Enforcement Section provides technical and financial assistance throughout unincorporated Pierce County and, to a limited extent, within incorporated cities and towns. This assistance includes neighborhood cleanups to resolve targeted blight, issuance of junk vehicle affidavits to allow property owners to remove abandoned vehicles from private property and litter credits to offer financial assistance to property owners who have been the victim of illegal dumping or poor waste handling practices.

Public Works also plays a role in funding code enforcement staff at the Tacoma-Pierce County Health Department and coordinating and funding nuisance abatement as authorized by the Superior Court.

As part of the 2017 budget development process, and following interagency discussions, Public Works is proposing to bring enforcement of solid waste nuisances (including illegal dumping and improper storage) in-house, rather than funding the program in the Health Department. This change, if approved, will streamline enforcement services in Public Works and allow the Health Department to focus its enforcement resources on on-site septic violations. The Health Department will remain responsible for issuing and enforcing solid waste handling permits.

EXISTING PROGRAMS

- *Litter Credit*
- *The Community Assistance and Public Education (CAPE) program*
- *PickItUp*

ISSUES ADDRESSED ELSEWHERE

Several components of our region's materials management system are overseen by agencies other than Pierce County and the City of Tacoma. Below is a list of these components, including program descriptions and the agency responsible for their implementation.

HOUSEHOLD HAZARDOUS WASTE

Tacoma-Pierce County Health Department (TPCHD)
TPCHD works with the City of Tacoma and Pierce County to implement various *household hazardous waste* programs. Under authority of the Tacoma-Pierce County Local Hazardous Waste Management Plan, TPCHD acts as lead or primary coordinating agency on both household and small quantity hazardous waste programs within Pierce County. The Tacoma-Pierce County Local Hazardous Waste Management Plan delegates responsibility for specific programs to various agencies. Pierce County Public Works is responsible for household hazardous waste collection within the Pierce County solid waste disposal service area.

Residents may take their household hazardous waste free-of-charge to two locations—the Hidden Valley and City of Tacoma transfer stations. Waste accepted at the facilities includes: oil or solvent-based paints, used motor oil, antifreeze, pesticides, herbicides, car and household batteries, dyes, flammable liquids, household cleaners, pool chemicals, solvents, fluorescent light bulbs and tars.

ACCEPTED

Aerosol Cans (unempty)	Insect Repellents
All-Purpose Cleaners	Mercury Thermometers
Antifreeze	Motor Oil
Automotive Products	Oil-Based Paints
Bleach	Oven Cleaner
Carpet & Upholstery Cleaner	Paint Thinner
Cooking Oil	Pesticides
Degreasers	Polish (shoe, furniture, brass)
Drain Cleaner	Pool Chemicals
Flea Collars	Propane Tanks & Cylinders
Floor Wax	Rechargeable Batteries
Flammable Liquids	Rust Remover
Glues	Toilet Cleaner
Herbicides	Weed Killer
Household Cleaners	Yard & Garden Chemicals

E-waste programs collect old strings of lights

Many electronic items are considered e-waste once discarded

ELECTRONICS RECYCLING

Department of Ecology

In 2006, the Washington legislature passed the Electronic Product Recycling Act (RCW 70.95N) requiring a convenient, safe and environmentally sound system for collecting and transporting covered electronic products (CEPs). On Jan. 1, 2009, Washington's Electronic Product Recycling rule (WAC 173-900) established E-Cycle Washington for manufacturers of CEPs sold in Washington. Manufacturers finance this collection and recycling system.

E-Cycle Washington provides for the recycling of electronic products at no cost to households, small businesses, charities, school districts and small governments. Products accepted at E-Cycle Washington drop-off sites are: computers, monitors, laptops, tablet computers, televisions, portable DVD players and e-readers. A complete list of all the E-Cycle Washington locations in Pierce County may be found on the *Ecology website*.

Keyboards, mice and printers are not included in E-Cycle Washington. These items and other electronics (toner cartridges and cell phones) can be dropped off and recycled at no charge at certain retailers like Best Buy, Staples and RadioShack.

Most of the electronics that are recycled through E-Cycle Washington are disassembled for recycling in Washington. Metals, plastics and glass are separated and sold as commodities to be reused as raw materials in the manufacturing of new products. Toxic materials such as batteries, leaded glass, circuit boards and fluorescent tubes must be managed properly by approved recyclers.

MERCURY-CONTAINING LIGHT BULB RECYCLING

Department of Ecology

State law (RCW 70.275) requires that all mercury-containing lights be recycled. Mercury from fluorescent lights and High Intensity Discharge (HID) lights may harm human health and the environment if not properly recycled. Mercury-containing lights are safe to use, but disposing of these lights in the regular garbage could cause mercury to be released into the environment if they break. All producers of mercury-containing lights sold at retail stores in Washington must participate in an approved product stewardship program.

The LightRecycle Washington program began on Jan. 1, 2015 for the collection and recycling of mercury-containing lights. Homeowners and small businesses can recycle up to 10 compact fluorescent lights, fluorescent tubes (up to eight feet long) or HID lights each day. Broken lights are accepted if they are sealed in a container. Not all locations accept all types of lights.

Collection sites have been established throughout Pierce County. Almost every city in Pierce County has a collection site. To find a collection site or for more information about the program visit *www.lightrecyclewa.org.*

LightRecycle Washington is managed by PCA Product Stewardship Inc., a non-profit organization. Funding for this program comes from a $0.25 per light Environmental Handling Charge (EHC) that is added to the purchase price of every mercury-containing light. This money is used to cover program costs, including managing the transportation and recycling of collected products and the administration and promotion of the program. Packages containing multiple lights have the $0.25 charge added to the price for each light.

GROWTH MANAGEMENT

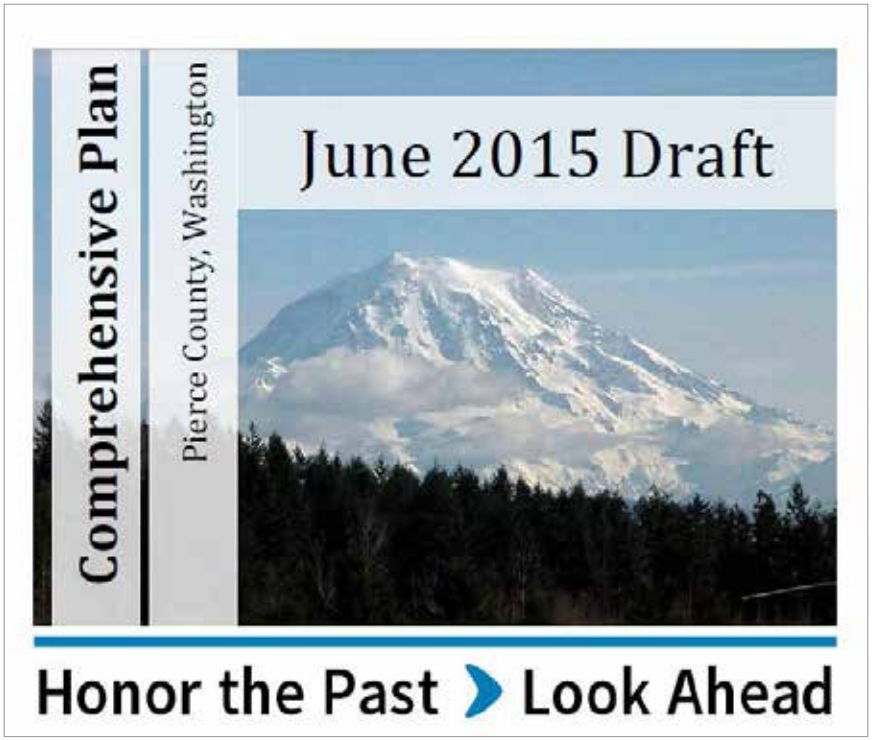
Pierce County Comprehensive Plan

At the same time the Pierce County Council adopts, amends or supplements the Tacoma-Pierce County Solid Waste Management Plan, they will also codify the Plan in two locations: as Chapter 8.28 within the Health and Welfare title of the County Code; and as Chapter 19D.90 as a planning document related to the Comprehensive Plan for Pierce County. As such, the Tacoma-Pierce County Solid Waste Management Plan must both build upon, and be consistent with high-level policy described by two goals found in the *Utilities Element of the Comprehensive Plan:*

- Provide reliable and cost-effective service as detailed in the most recent update of the Tacoma-Pierce County Solid Waste Management Plan.
- Support efforts to reduce solid waste and increase recycling and diversion of waste to assure disposal capacity, reduce emissions and prevent pollution.

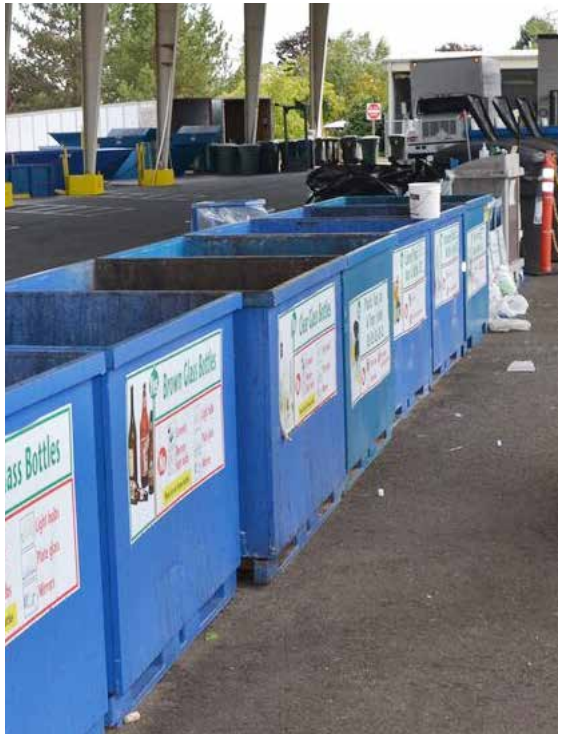
Pierce County also provides for the development and adoption of community plans, some of which also include policy objectives relating to waste reduction and recycling, the siting of solid waste and recycling facilities, and enforcement issues.

Public Works staff participation in comprehensive plan and community plan updates help ensure consistency between planning documents and to ensure solid waste and recycling facilities develop to meet the need of changing and growing populations.



The Comprehensive Plan identifies two goals which the Solid Waste Management Plan builds upon

Commingled recycling containers sometimes look very similar to garbage bins



Presorted recycling can help reduce contamination

EMERGING ISSUES AND FUTURE CONSIDERATIONS

As we look to the future of the materials management system in Tacoma and Pierce County, several issues are beginning to emerge. These topics are not addressed in this supplement, but should be considered in the years to come as they are having a growing impact on the system.

CHALLENGES WITH COMMINGLED RECYCLING

Commingled recycling in larger, single recycling containers, increases recycling rates in nearly every community it is implemented. However, there are challenges we will need to address over time. Commingled recycling programs have higher levels of contamination, leading to additional sorting required at MRFs, causing more materials to be discarded back into the waste stream along the recycling process and reducing the value of recyclable materials in the marketplace.

To conduct a true evaluation of our recycling program and determine its environmental and economic sustainability, we should account for what is actually recycled by end-users, not just what is collected in the program. This accounting would require subtracting the percentage of rejected material at sorting facilities, processors and manufacturing plants from the initial collection figure, and then calculating the loss of revenue from reduced material value; all in all, a daunting endeavor. The recycling industry is studying the issues associated with commingled recycling collection and we will monitor trends and data to determine long-term implications to our materials management system.

PRODUCT STEWARDSHIP

Product stewardship, sometimes called extended producer responsibility, is a philosophy and management strategy where the manufacturer takes responsibility for managing its product and packaging throughout its whole life cycle. While others along the supply chain (suppliers, retailers and consumers) have roles and responsibilities, it is the producer that has the greatest ability to minimize environmental, social and economic impacts. Numerous states have passed product stewardship legislation shifting the responsibility for the safe collection, transportation and management of products (particularly those with hazardous waste) away from local governments and to the manufacturers.

The E-Cycle Washington and LightRecycle Washington programs noted previously are two product stewardship programs in Washington that stem from this type of legislation. The state is currently considering product stewardship legislation for latex and oil-based paint. Pharmaceuticals, carpet and rechargeable batteries are also under consideration, but appear to be farther away from becoming law.

RETAINED POLICIES

The following are policy support recommendations retained from the 2000 Solid Waste Plan. Most of them provide guidance for actions to take if an event should occur or they offer basic support for the system.

PROGRAMMATIC GUIDELINES RETAINED FROM THE 2000 SOLID WASTE PLAN

Waste Reduction and Recycling (Chapter 4)

#4-1 For the cities and towns using the County's waste management system, the Pierce County Solid Waste Division should continue to serve as the agency responsible for promoting county-wide waste reduction and recycling activities; to provide educational resources and technical assistance; and to evaluate efforts of these activities. The County should continue to coordinate its public outreach with the City of Tacoma, the Tacoma-Pierce County Health Department and other agencies.

#4-2 Pierce County should continue to provide adequate funding and staffing to assist cities and towns in implementing waste reduction and recycling activities discussed in the Plan. The Pierce County Solid Waste Division should remain the coordinator of these programs for the County and those cities and towns using the County's waste management system.

#4-32 Pierce County should retain the use of rate-based incentives in promoting waste reduction and recycling. The County should work closely with private collection companies serving the County to identify equitable, implementable rate strategies that will be acceptable to the Washington Utilities and Transportation Commission. Pierce County should also continue to work directly with the Commission to identify and implement these types of alternatives.

 # 5-4 The City of Tacoma will continue to provide solid waste collection and disposal services within its corporate city limits. The City shall retain the right to determine all minimum service levels and collection and disposal rates as adopted by the Tacoma City Council, pursuant to RCW 35.21.120.

#7-4 As becomes necessary to ensure sufficient transfer facilities, Pierce County should obtain the use of additional transshipment facilities, public or private, for transferring waste to out-of-county disposal facilities.

#7-5 Pierce County encourages private transfer facilities located within Pierce County to reserve transfer capacity for waste generated within Pierce County.

Solid Waste Processing Technologies (Chapter 6)

#6-3 Pierce County encourages private recycling, composting, and processing facility operators located within Pierce County to reserve processing capacity for materials generated within Pierce County.

#6-5 Only those technologies with demonstrated reliability should be implemented as primary processing alternatives of the solid waste management system. However, governments and the private sector may wish to conduct pilot programs and explore new and innovative ideas. The appropriate regulatory agencies shall determine whether or not any potential technology meets the requirements of this Plan.

#6-6 Only processing technologies that are protective of human health and the environment (for example those that create no adverse odor impacts to neighboring properties) should be deemed to be in compliance with the Solid Waste Management Plan. As new processing technologies emerge, the environmental and health impacts should be carefully considered.

#6-8 With any alternative technology project, the operating vendor must provide sufficient financial assurances to minimize financial risk to the public for environmental and technical performance. Each city, town, and the County Council will independently determine the level of financial and environmental assurances that will be required for projects under their own jurisdiction.

Disposal and Landfilling (Chapter 8)

#8-1 If there is a lack of landfill capacity in Pierce County for solid waste generated in the Pierce County solid waste management system in the future or if the county determines by resolution that out-of-county disposal options are cost effective, the County may contract for the use of an out-of-county landfill.

#8-3 When the Tacoma-Pierce County Health Department and the Pierce County Department of Planning and Land Services review permit applications to site, develop, and operate new MSW landfills, or to expand existing MSW landfills in Pierce County or whenever Pierce County is considering decisions to contract for MSW disposal, the agencies must include in the decision-making process an evaluation of:

- Effect on public health and safety;
- Protection of the environment, including aquifers and waters of the State;
- Pierce County's waste generation habits and trends with an assurance that options are adequate for meeting Pierce County's waste generation needs;
- Competition for disposal services;
- Meeting the potential emergency needs should a primary disposal site suddenly become unavailable; and
- The costs of using various alternatives which will be analyzed and verified through the use of publicly available data published by other government organizations, formal requests for proposals, qualification or information (RFP, RFQ, or RFI), or through another method as recommended by the Solid Waste Advisory Committee.

The Solid Waste Division shall have primary responsibility for the evaluation, but will work with the Department of Planning and Land Services, the Tacoma-Pierce County Health Department, and the applicant to minimize duplication of effort.

#8-4 MSW landfill expansions within unincorporated Pierce County shall undergo a permitting process with adequate public notice and opportunity for public comment. Expansions shall be required to meet the regulations in effect at the time of expansion and to protect public health and safety and the environment. Expansions shall be prohibited for any landfill that is in violation of existing surface water or groundwater standards.

#8-5 The County shall require, to the extent allowed by law, private MSW disposal companies located within unincorporated Pierce County to reserve existing disposal capacity to handle MSW generated within the Pierce County solid waste management systems. When negotiating disposal contracts with any such facility owner/operator, the County shall propose terms which:

- Reserve adequate disposal capacity to serve the Pierce County solid waste disposal system as projected in the 'County-wide' column of Table 8-2, 'Projected Long Term Disposal Needs;'
- Require the mutual agreement of the contracting parties before the contractor can bring in waste from outside the County solid waste management system.

#8-6 No municipal solid waste landfill located within unincorporated Pierce County shall accept waste from outside the Pierce County solid waste management systems without addressing the impacts of that action. The impacts under the facility's conditional use permit shall be reviewed by the Pierce County Hearing Examiner. The impacts under the facility's solid waste handling permit shall be reviewed by the Tacoma-Pierce County Health Department. These reviews shall be conducted as a public process and follow the applicable laws and regulations governing the conditional use permit and the solid waste handling permit processes. The results of the review shall be reported at a Pierce County Council meeting.

#8-7 While this Plan recognizes and describes the complex authorities and regulation of waste disposal, nothing in the Plan specifically authorizes or specifically prohibits the importation of solid waste from outside the County solid waste management systems to MSW landfills located in unincorporated Pierce County.

#8-8 Before approving the acceptance of municipal solid waste from outside the Pierce County solid waste management systems or before approving a substantial change in the design or operation of a municipal solid waste landfill within unincorporated Pierce County, the TPCHD shall give the public notice of the issue and provide the public an opportunity to be heard.

Enforcement and Administration (Chapter 10)

#10-4 When Pierce County and the Cities and Towns (excepting Tacoma and Ruston) enter into Interlocal Agreements to implement this plan, those Agreements shall require the planning partners to work cooperatively in a common solid waste transfer and disposal system. This is necessary to: provide economies of scale; avoid unnecessary and costly duplication of services; and minimize the number of solid waste related facilities which must be developed and permitted to implement this plan.

#10-5 Where practical, the solid waste management system should be advanced through an open competitive procurement process to benefit public interest.

#10-8 The Tacoma-Pierce County Health Department shall implement ways to increase public notice, input, and involvement in the solid waste handling facility permit application review process. The following issues were identified as particular areas the Health Department should review:

Formal public notice and comment periods when issuing and modifying solid waste handling facility permits.

Public meetings on the basis of requests, a significant degree of public interest, or to clarify one or more aspects important to compliance with the requirements of applicable permit; and

Identification of impacts which may occur across jurisdictional boundaries.

#10-9 When an applicant applies for a Solid Waste Permit, the Tacoma-Pierce County Health Department shall notify the property owner(s) and verify that the owners understand they will be responsible for clean-up of any waste left by any solid waste facility or activity on their property.

#10-23 Under this Solid Waste Management Plan, the City of Tacoma will retain control over all aspects of solid waste management within its corporate city limits, such as collection and disposal rates, minimum service levels, and waste management programs.

APPENDIX

A. GLOSSARY

Below are material management terms that are used in this document. The definitions provided are specific to this document and may not encompass all uses of these terms.

Commingled Recycling—a service where customers can place all program accepted recyclable materials into one container (e.g., plastic, paper, aluminum)

Composting—the controlled breakdown of organic waste to make a soil amendment, conditioner or mulch. Organic materials include such things as yard waste, food waste, wood waste, biosolids (organic solids removed from waste water treatment) and paper

Curbside Collection—a service that picks up recyclable items, compost and/or garbage from customers' properties at regularly scheduled times

Diversion—the avoidance of placing items into a landfill through reuse, recycling and composting

Extended Producer Responsibility—see Product Stewardship

Facility—a place that receives materials from outside of its site boundaries such as a transfer station or recycling center. Dumpsters and other containers that only service the site where they are located are not considered facilities

Interlocal Agreements (ILAs)—legal arrangements between Pierce County and its cities and towns that establishes the adoption and implementation of the Solid Waste Management Plan

Landfill—a disposal facility or part of a facility where garbage is permanently placed in or on the land

Material Recovery Facility (MRF)—a place where recyclable items are separated into individual material types (e.g., plastic, paper, aluminum). MRFs send bales (large compressed blocks) of recyclable materials to other facilities where they are processed into new products

Materials Management System—all aspects of the solid waste system from waste generation to disposal. The system aims to use and reuse resources efficiently and sustainably throughout their lifecycles. It seeks to minimize materials used and all associated environmental impacts

Minimum Level of Service Ordinances—requirements established for residential curbside recycling and yard waste collection. These requirements must be met by the solid waste collection companies operating in unincorporated portions of the county

Municipal Solid Waste (MSW)—a subset of solid waste which includes garbage discarded from residential, commercial, institutional and industrial sources

Pierce County Responds— a central clearinghouse designed to accept complaints relating to a wide variety of property and nuisance violations

Product Stewardship—a philosophy and management strategy where the manufacturer takes responsibility for managing its product and packaging throughout its whole life cycle. Also called extended producer responsibility

Recycling—the collection of items in order to transform or remanufacture the material into usable or marketable products

Reduction—the effort to avoid waste at its source and therefore have less waste to manage

Reuse—repurposing an item or material to avoid its disposal

Single Use Items—products that are designed to be used once and then disposed, such as paper coffee cups, plastic sandwich bags and disposable razors

Solid Waste Advisory Committee (SWAC)—a group required by state law established by the County to "assist in the development of programs and policies concerning solid waste handling and disposal." The SWAC reports to the Pierce County Council

Special Waste—those materials with unique collection, handling and disposal requirements that are not generally part of the mixed municipal solid waste stream. Includes items such as contaminated soils, street sweeping residues, waste from cleaning manholes and storm drains, sludges, boiler or incinerator ash and many industrial wastes

Sustainability—treated holistically; sustainability should not be confused with "green" or "environmentally friendly". Sustainable decisions and actions consider all factors that might affect maintainability, such as economics, efficiency, equitability, effectiveness and the environment

Transfer Station—a facility where self-haulers and collection vehicles deposit waste collected offsite. The waste is then moved to larger vehicles for transport to solid waste handling facilities (e.g., landfills, composting facilities, materials recovery facilities)

Waste—items that are discarded and managed through either recycling, composting or garbage services

Waste Trends Analysis—Pierce County's annual program that inventories items found in the municipal garbage. Waste is manually sorted and classified to help the system administrators better understand what is being discarded

Yard Waste—natural yard debris that can be composted or ground-up for mulch, such as grass clippings, brush, leaves and tree limbs

B. EVIDENCE OF SWAC PARTICIPATION

The Pierce County Solid Waste Advisory Committee (SWAC) assists the Pierce County Council and Pierce County Public Works Sustainable Resources Division in the development of programs and policies concerning solid waste handling and disposal.

SWAC members are citizens, members of public interest groups, professionals from the business community, operators of solid waste collection and recycling companies and representatives of local governments.

Voting Members	Representing
Danielle Allen	Business
Angela Angove	Citizens
Drew Brien (–2017)	Citizens
Gail Ehnat O'Donnell	Business
Jillian Foss	Citizens
Mark Gingrich	Waste Management Industry
Michael Gruener	Waste Management Industry
Nancy Henderson (2016–)	Local Public Officials
Jenny Jacobs	Business
Gary Kato	Local Public Officials
Dennis Magnuson	Citizens
George Robison	Citizens
Chester Saito	Citizens
Mary Sherman (2016–)	Local Public Officials
René Skaggs (2016–)	Agriculture
Steve Worthington (–2016)	Local Public Officials

Non-Voting Members	Representing
Andy Comstock	Tacoma-Pierce County Health Department
Jody Snyder	LRI
Hugh Taylor	Pierce County Council
Steve Wamback	Pierce County Public Works

Through an eighteen-month process, the SWAC contributed valuable feedback which shaped the 2016 Supplement. Below is a table of meeting dates and topics. Each meeting included a time for "Community Conversations" where members of the public and the SWAC discussed details of the Plan.

Meeting Date	Topic
Oct. 8, 2014	Project charter, roles and responsibilities, draft plan framework, initial vision statement
Nov. 11, 2014	Required supplement components and project charter, supplement writing strategy, draft vision statement, goals
Dec. 10, 2014	Updated framework, vision, objectives, goals
Feb. 11, 2015	Goals, objectives, actions
March 11, 2015	Decisions content
April 8, 2015	System content
May 5, 2015	Culture and Measurement content
June 10, 2015	Document structure
June 24, 2015	Document body
Sept. 9, 2015	Draft supplement
Oct. 14, 2015	Final supplement
May 11, 2016	Public hearing
June 8, 2016	Formal recommendation

C. WUTC COST ASSESSMENT

COST ASSESSMENT PREPARED FOR THE 2016 SUPPLEMENT TO THE TACOMA-PIERCE COUNTY SOLID WASTE MANAGEMENT PLAN

RCW 70.95.090 (8) "requires an assessment of the plan's impact on the costs of solid waste collection . . . prepared in conformance with guidelines established by the utilities and transportation commission." RCW 70.95.096, however, limits the Commission's review to ". . . the plan's assessment of solid waste collection cost impacts on rates charged by solid waste collection companies regulated under chapter 81.77 RCW. . ." and requires the Commission to "advise the county or city submitting the plan and the department of the probable effect of the plan's recommendations on those rates."

This Cost Assessment is prepared to solicit the advice of the Washington Utilities and Transportation Commission as to how this Plan Supplement may impact the rates charged by Commission-regulated haulers. Other readers may wish to review the Cost Assessment in tandem with Chapters 10 and 11 of the 2000 Plan and the rest of the 2016 Supplement which describe the County's solid waste management systems, provide a cost and financial review, and prioritize programs for implementation.

SUMMARY OF FINDINGS

1. The 2016 Supplement does not propose policies or programs which will directly or immediately impact the regulated services or rates charged by Commission-regulated haulers. There are, however, objectives which may eventually be implemented by certificated haulers in unincorporated Pierce County and by contract haulers within cities and towns. One such objective is S-1 in which Pierce County will evaluate whether it is important to standardize service options, container sizes, designs, colors, etc. While the initial study would be conducted in-house, any implementation by haulers would have to be arranged to maximize—and not "strand"—prior ratepayer investment in containers etc. Since Pierce County has a long track record demonstrating such sensitivity, this cost assessment does not identify haulers having to incur unusual or unscheduled costs.
2. The 2016 Supplement proposes continued efforts on a vision and path to reduce waste generation, increase recycling, and dramatically decrease per capita waste disposal needs. Despite a growing population it is Pierce County's desire to see the overall disposal stream shrink.
3. Solid waste tipping fees will remain the primary funding source for all programs. It is expected that the posted solid waste tipping fee (including the County Program Cost and those elements funding private sector services) will increase from $144.97 in 2015 to $192.47 by 2021 as residents and businesses decrease how much waste each disposes. Adjusting for inflation, population growth and reduced disposal, the per capita cost impact will decline from $92.17 to $89.08 per year.
4. For programs and services proposed to be provided by Pierce County, this Cost Assessment shows that the County will continue to use the County Program Cost component of the solid waste tipping fee as its primary funding mechanism. Pierce County plans to continue to raise the County Program Cost in a measured way so that the impact on a per capita basis remains below the rate of inflation. This plan is designed to "live within our means."

COST ASSESSMENT QUESTIONNAIRE

Plan Prepared for the County of: Tacoma-Pierce County

Prepared by: Pierce County Public Works

Steve Wamback, Sustainable Resources Administrator

Chris Brown, Management Analyst

Contact Telephone: (253) 798-2179
Date: 10/02/2015

Definitions

1. Throughout this document:
   BASE shall refer to January 1 to December 31, 2015
   YR. 1 shall refer to January 1 to December 31, 2016
   YR. 3 shall refer to January 1 to December 31, 2018
   YR. 6 shall refer to January 1 to December 31, 2021
2. Base year costs reflect the adopted 2015 Pierce County Sustainable Resources budget.
3. Year 1 costs reflect the proposed 2016 Pierce County Sustainable Resources budget, scheduled for adoption in November 2015.
4. Cost projections for years 3 and 6 are adjusted assuming a 2 % annual inflation rate with estimates generally rounded to the nearest thousand, but with intermediate adjustments since not every programmatic element of the system neatly adjusts with inflation.

1. DEMOGRAPHICS

1.1 Population

1.1.1 Current and projected population of Pierce County, including Tacoma and Joint Base Lewis McChord (JBLM)

Base–2015	2016	2018	2021
830,120	840,977	863,386	898,444

1.1.2 Current and projected population of the Pierce County Solid Waste System

Base–2015	2016	2018	2021
597,320	603,842	617,063	637,636

1.1.3 Current and projected population of Tacoma/Ruston

Base–2015	2016	2018	2021
203,205	207,729	217,082	231,909

1.2 References and Assumptions

- The response to item 1.1.1 is based on the April 1, 2015 population estimate released for Pierce County by the Washington Office of Financial Management and population projections contained in the 2015 Pierce County Comprehensive Plan adopted as Pierce County Ordinance 2015-40.
  See *www.piercecountywa.org/realize2030*.
- The responses to item 1.1.2 through 1.1.3 are based on the data sets described above and focus on each of the Tacoma and Pierce County systems described on page 31 of the 2016 Supplement.

2. WASTE STREAM GENERATION

This data set estimates tonnage generated by all three waste management systems within the County: Pierce County, Tacoma and JBLM.

2.1 Tonnage Recycled

Base–2015	2016	2018	2021
533,819	546,254	572,035	613,299

2.2 Tonnage Disposed

Base–2015	2016	2018	2021
563,503	550,001	525,015	489,789

This data set estimates tonnage for just the Pierce County Solid Waste System, using the population presented in response 1.1.2.

2.3 Tonnage Recycled

Base–2015	2016	2018	2021
384,114	392,191	408,834	435,265

2.4 Tonnage Disposed

Base–2015	2016	2018	2021
382,003	371,378	352,482	325,832

2.5 References and Assumptions

- The responses to items 2.1 and 2.3 are based on data published by the Washington Department of Ecology which reported a per capita recycling rate of 3.42 pounds per person per day in calendar year 2013. This recycling rate is forecast to increase by 1 percent per year.
- The responses to items 2.2 and 2.4 are based on landfill disposal of municipal solid waste through June 30, 2015. Projections use the same approach as in the twenty-year projections found in Appendices E and F of the 2016 Supplement. Excluded here are the following categories of waste not directly managed as part of the Pierce County solid waste system: Alternative Daily Cover, metal- and VOC-containing soils, mixed construction and land clearing debris, material recovery facility residuals and manufacturing by-product.

3. SYSTEM COMPONENT COSTS—PIERCE COUNTY COSTS

In 2000, Pierce County modified the Cost Assessment Questionnaire to make it a more useful and specific tool for Pierce County while still meeting the needs of the WUTC. We continue that approach in this 2016 Supplement. The following pages contain, at a minimum, the same information requested by the WUTC. This approach is consistent with the instruction on page 9, of the Cost Assessment Guidelines, 2nd Edition, Revised, August 2001.

SUMMARY: PIERCE COUNTY PUBLIC WORKS—SUSTAINABLE RESOURCES DIVISION

The tables on the next 5 pages present Pierce County's program costs as requested in Sections 3.1, 3.2, 3.6 and 3.7 of the Cost Assessment Questionnaire.

	Base Year 2015 Actuals	Year One 2016 Proposed	Year Three 2018 Estimated	Year Six 2021 Estimated
Current and Continuing Programs				
Waste Reduction & Diversion and Public Outreach	$1,361,290	$1,186,260	$1,274,000	$1,310,000
Environmental Education	$643,230	$633,560	$616,000	$646,000
Capital Improvement Program	$88,000	$140,690	-	-
System Administration	$1,676,465	$1,695,230	$1,750,000	$1,837,000
Code Enforcement and Nuisance Abatement	$1,540,220	$1,550,480	$1,557,000	$1,629,000
Total for Current and Continuing Programs	$5,309,205	$5,206,220	$5,197,000	$5,422,000

Proposed New Programs				
Waste Reduction & Diversion and Public Outreach	-	$118,000	$124,000	$137,000
Environmental Education	-	-	-	-
Capital Improvement Program	-	-	-	-
System Administration	-	-	-	-
Code Enforcement and Nuisance Abatement	-	-	-	-
Total for New Programs	-	$118,000	$124,000	$137,000
All Programs	**$5,309,205**	**$5,324,220**	**$5,321,000**	**$5,559,000**

WASTE REDUCTION & DIVERSION AND PUBLIC OUTREACH

	Base Year 2015 Actuals	Year One 2016 Proposed	Year Three 2018 Estimated	Year Six 2021 Estimated
Current and Continuing Programs				
Waste Reduction and Recycling Public Information and Outreach	$809,645	$717,260	$746,000	$792,000
Household Hazardous Waste Diversion Programs	$410,000	$418,000	$435,000	$462,000
County Office Recycling Programs	$45,000	$51,000	$53,000	$56,000
Solid Waste Management Plan	$96,645	$-	$40,000	$-
Total for Current and Continuing Programs	$1,361,290	$1,186,260	$1,274,000	$1,310,000
Proposed New Programs				
Community Document Shredding Service	$-	$32,000	$33,000	$35,000
Recycling Away From Home - Outreach Activities (Objective S-4)	$-	$-	$19,000	$22,000
Reduce Wasted Food Programs Outreach (Objective C-3)	$-	$-	$20,000	$20,000
Targeting Single-Use Items - Water Bottle Filling Stations (Objective C-4)	$-	$8,000	$8,000	$9,000
Reduction and Diversion Program Sustainability Screening (Objective M-1)	$-	$78,000	$44,000	$51,000
Total for New Programs	$-	$118,000	$124,000	$137,000
All Waste Reduction & Diversion and Public Outreach Programs	**$1,361,290**	**$1,304,260**	**$1,398,000**	**$1,447,000**

Funding Mechanisms

This component of the Pierce County solid waste system is primarily funded by the **County Program Cost** (CPC) component of solid waste tipping fees. In 2015 and 2016, the **Department of Ecology Coordinated Prevention Grant** (CPG) supplements local funding.

ENVIROMENTAL EDUCATION (PAGES 39 AND 40)

	Base Year 2015 Actuals	Year One 2016 Proposed	Year Three 2018 Estimated	Year Six 2021 Estimated
Current and Continuing Programs				
Environmental Education Programs	$446,230	$458,060	$477,000	$506,000
Pierce County Master Gardeners Education and Outreach	$42,000	$43,000	$44,000	$45,000
Harvest Pierce County - Community Gardens	$75,000	$75,000	$75,000	$75,000
Harvest Pierce County - Gleaning Programs	$50,000	$45,000	$10,000	$10,000
Community Compost Training / Demonstration Sites	$30,000	$12,500	$10,000	$10,000
Total for Current and Continuing Programs	$643,230	$633,560	$616,000	$646,000
Proposed New Programs				
N/A				
Total for New Programs	$-	$-	$-	$-
All Environmental Education Programs	**$643,230**	**$633,560**	**$616,000**	**$646,000**

Funding Mechanisms

This component of the Pierce County solid waste system is primarily funded by the **County Program Cost** (CPC) component of solid waste tipping fees.

CAPITAL IMPROVEMENT PROGRAM (APPENDIX D)

	Base Year 2015 Actuals	Year One 2016 Proposed	Year Three 2018 Estimated	Year Six 2021 Estimated
Current and Continuing Programs				
Purdy Transfer Station Improvements	$88,000	$140,690		
Total for Current and Continuing Programs	$88,000	$140,690	$-	$-
Proposed New Programs				
N/A				
Total for New Programs	$-	$-	$-	$-
All Capital Improvement Programs	**$88,000**	**$140,690**	**$-**	**$-**

Funding Mechanisms

This component of the Pierce County solid waste system is funded by Solid Waste Enterprise Fund Balance (reserves) which had been set aside for this purpose.

SOLID WASTE ADMINISTRATION (PAGE 45)

	Base Year 2015 Actuals	Year One 2016 Proposed	Year Three 2018 Estimated	Year Six 2021 Estimated
Current and Continuing Programs				
Public Works / Sustainable Resources Administration	$1,088,645	$1,101,530	$1,144,000	$1,213,000
Health Department - Solid Waste	$587,820	$593,700	$606,000	$624,000
Total for Current and Continuing Programs	$1,676,465	$1,695,230	$1,750,000	$1,837,000
Proposed New Programs				
N/A	$-			
Total for New Programs	$-	$-	$-	$-
All System Administration Programs	**$1,676,465**	**$1,695,230**	**$1,750,000**	**$1,837,000**

Funding Mechanisms

This component of the Pierce County solid waste system is primarily funded by the **County Program Cost** (CPC) component of solid waste tipping fees.

CODE ENFORCEMENT AND NUISANCE ABATEMENT (PAGE 46)

	Base Year 2015 Actuals	Year One 2016 Proposed	Year Three 2018 Estimated	Year Six 2021 Estimated
Current and Continuing Programs				
Code Enforcement Operations	$968,120	$965,980	$1,005,000	$1,067,000
Nuisance Vehicle Enforcement (PC Sheriff)	$109,000	$111,000	$113,000	$117,000
Health Department - Code Enforcement	$212,100	$214,200	$219,000	$225,000
Property Cleanup and Abatement	$251,000	$259,300	$220,000	$220,000
Total for Current and Continuing Programs	$1,540,220	$1,550,480	$1,557,000	$1,629,000
Proposed New Programs				
N/A	$-			
Total for New Programs	$-	$-	$-	$-
All Code Enforcement and Nuisance Abatement	**$1,540,220**	**$1,550,480**	**$1,557,000**	**$1,629,000**

Funding Mechanisms

This component of the Pierce County solid waste system is primarily funded by the **County Program Cost** (CPC) component of solid waste tipping fees and Solid Waste Enterprise Fund Balance. In 2015 and 2016 the **Department of Ecology Community Litter Cleanup Program** (CLCP) supplements local funding.

SYSTEM COMPONENT COSTS—TRANSFER, COMPOSTING, DIVERSION AND DISPOSAL COSTS

This chart covers services provided directly by the County's disposal system operator, Pierce County Recycling, Composting and Disposal LLC d/b/a LRI (LRI) under the terms of the County's Waste Handling Agreement. With the exception of post-closure and site remediation activities, all of these are funded directly out of current year tipping fees.

COMPOSTING/DIVERSION, TRANSFER AND DISPOSAL SYSTEMS

	Base Year 2015 Actuals	Year One 2016 Proposed	Year Three 2018 Estimated	Year Six 2021 Estimated
Current and Continuing Programs				
Solid Waste Processing Technologies - Composting	$11,628,171	$11,445,870	$12,386,000	$13,760,000
Transfer Stations	$17,037,334	$16,723,151	$16,486,000	$16,679,000
Solid Waste Disposal Services	$22,224,935	$21,461,935	$20,969,000	$19,827,000
Purdy Post Closure and Maintenance	$151,500	$134,000	$35,000	$35,000
Hidden Valley Post Closure	$292,000	$263,000	$402,000	$271,000
Total for Current and Continuing Programs	$51,333,940	$50,027,956	$50,278,000	$50,572,000
Proposed New Programs				
Solid Waste Processing Technologies - C&D Recovery	$-		$4,402,000	$7,263,000
Other Site Remediation	$-	$20,000	$20,000	$20,000
Total for New Programs	$-	$20,000	$4,422,000	$7,283,000
All Programs	**$51,333,940**	**$50,047,956**	**$54,700,000**	**$57,855,000**

Funding Mechanisms

Pierce County's composting system is funded by Component B—County Diversion Programs—of the solid waste tipping fee. Any program implemented to divert construction and demolition debris is also proposed to be funded through this same component.

Transfer stations and transportation services are funded by Component A—Transfer, Transportation and Recycling—of the solid waste tipping fee.

Disposal services are funded by Component C—Disposal—and Component D—Community Support Services—of the solid waste tipping fee.

Post-closure and closed landfill site remediation activities are funded from dedicated reserve accounts maintained by Pierce County government.

Please refer to the Funding Mechanism Summary Charts for more detail on the specific allocation of revenues and expenses.

Energy Recovery & Incineration Programs (Cost Assessment Section 3.4)

There are no waste to energy or incinerator facilities handling waste generated within the Pierce County Solid Waste System.

Land Disposal Program (Cost Assessment Section 3.5)

The disposal site for waste generated within the Pierce County Solid Waste System is the LRI Landfill in Graham, WA. Pierce County Recycling, Composting, and Disposal LLC (d/b/a LRI) owns and operates this landfill following the terms of a Waste Handling Agreement executed with Pierce County in 2008.

Solid Waste Collection Programs (Cost Assessment Section 3.3)

This page summarizes information on private waste hauling companies, as requested by Section 3.3 of the cost assessment. Detail on certificated and other haulers follows on the two pages. Haulers provided the base year data to the County in October 2015.

ALL SOLID WASTE COLLECTION PROGRAMS

	Base Year 2015 Current	Year One 2016 Estimated	Year Three 2018 Estimated	Year Six 2021 Estimated
All Haulers (excluding Tacoma, Ruston and JBLM)				
Residential Customers	155,236	156,928	160,375	165,715
Commercial Customers	14,857	15,020	15,348	15,860
Estimated Annual Tonnage	285,050	276,499	262,246	242,293

SOLID WASTE COLLECTION PROGRAMS—CERTIFICATED HAULERS

	Base Year 2015 Current	Year One 2016 Estimated	Year Three 2018 Estimated	Year Six 2021 Estimated
American Disposal (G-87) and Murrey's Disposal (G-9)				
Residential Customers	52,500	53,072	54,238	56,044
Commercial Customers	2,725	2,755	2,815	2,909
Estimated Annual Tonnage	93,500	90,695	86,020	79,475
Harold LeMay Enterprises (G-98)				
Residential Customers	47,460	47,977	49,031	50,664
Commercial Customers	5,385	5,444	5,563	5,748
Estimated Annual Tonnage	86,700	84,099	79,764	73,695

SOLID WASTE COLLECTION PROGRAMS—OTHER HAULERS

	Base Year 2015 Current	Year One 2016 Estimated	Year Three 2018 Estimated	Year Six 2021 Estimated
D.M. Disposal				
Residential Customers	24,130	24,393	24,929	25,759
Commercial Customers	1,450	1,466	1,498	1,548
Estimated Annual Tonnage	41,400	40,158	38,088	35,190
Harold LeMay Enterprises				
Residential Customers	17,500	17,691	18,079	18,681
Commercial Customers	4,290	4,337	4,432	4,580
Estimated Annual Tonnage	49,500	48,015	45,540	42,075
University Place Refuse / Westside Disposal				
Residential Customers	13,646	13,795	14,098	14,567
Commercial Customers	1,007	1,018	1,040	1,075
Estimated Annual Tonnage	13,950	13,532	12,834	11,858

FUNDING MECHANISMS

Pierce County entered into a Waste Handling Agreement (WHA) with Pierce County Recycling Composting and Disposal LLC d/b/a LRI (LRI) in 2008. The term of the WHA runs through December 31, 2036. LRI operates five solid waste facilities owned by Pierce County:

- Purdy Transfer Station
- Anderson Island Residential Waste Transfer Site (Drop Box)
- Key Center Residential Waste Transfer Site (Drop Box)
- Prairie Ridge Residential Waste Transfer Site (Drop Box)
- Pierce County Yardwaste Composting Facility (at Purdy)

LRI makes available the Hidden Valley Transfer Station for the use of Pierce County residents, businesses, and haulers; and transports waste to its LRI Landfill in Graham.

The WHA establishes the solid waste tipping fee. There are four components to the tipping fee plus the County Program Costs:

- Component A: Transfer Facilities, Recycling, and Transportation
- Component B: County Diversion Programs
- Component C: Disposal Services
- Component D: Community Solid Waste Reduction and Support Programs

County Program Costs (CPC)

The following chart shows current and estimated system tipping fees. The fees scheduled to take effect on March 1, 2016 were reviewed by the Pierce County Executive and County Council in September 2015 and take effect through administrative action.

Component	2015	2016	2018	2021
Component A	$ 44.60	$ 45.03	$ 46.77	$ 51.19
Component B	$ 30.44	$ 30.82	$ 47.63	$ 64.52
Component C	$ 57.53	$ 56.99	$59.06	$ 60.36
Component D	$ 0.65	$ 0.80	$ 0.43	$ 0.49
CPC	$ 11.75	$ 12.20	$ 13.56	$ 15.91
Total	**$ 144.97**	**$ 145.84**	**$ 167.45**	**$ 192.47**

As shown in the following chart, on a population and inflation-adjusted basis, real annual per capita spending on system services will decline from $92.71 in 2015 to $89.08 in 2021.

	2015	2016	2018	2021
Tip Fee	$144.94	$145.84	$167.45	$192.47
Adjusting for Inflation	$144.97	$145.84	$160.95	$174.33
Tonnage	382,003	371,378	352,482	325,832
Inflation Adjusted Tip Fee Revenue	$55,378,975.00	$54,161,768.00	$56,731,141.00	$56,800,991.00
Population Served	597,320	603,842	617,063	637,636
Revenue Per Capita Per Year	$92.71	$89.70	$91.94	$89.08

Grants

For 2015 and 2016, Pierce County is the recipient of two grants from the Washington Department of Ecology: Coordinated Prevention Grant (CPG) and Community Litter Cleanup Program (CLCP). Recognizing long-term uncertainty about grant funding, future financial projections assume no grant dollars after 2016.

Dedicated Reserve Funds

Previous generations of ratepayers contributed to post-closure and self-insurance funding for the now-closed Purdy and Hidden Valley Landfills. Pierce County maintains two post-closure and one self-insurance account to fund post-closure and remediation activities at those sites following post-closure and operational plans approved by the Tacoma-Pierce County Health Department.

Fund Balance

Revenues from the County Program Cost component of the tipping fee, grants and other fees for service are deposited into Pierce County's Solid Waste Enterprise Fund. In the 1990s County policy then in effect resulted in the Division growing a fund balance significantly in excess of current-year operational needs. Since 2008, the County has been spending down the fund balance in support of a capital improvement program and the County's Code Enforcement and Nuisance Abatement programs. Separate from the Solid Waste Management Plan and this Cost Assessment, the Department annually prepares a six-year finance plan to ensure maintenance of a minimum fund balance and follow-through on plans to gradually raise the County Program Cost component of the tipping fee to align with current year operational needs.

Other Funding Sources

Minor funding sources include interest earned on the Fund Balance, environmental education class registration fees and reimbursement on liens which covered the cost of property abatements.

This final section of the Cost Assessment includes a number of tables that link program costs with revenues. This first chart was requested by WUTC staff during previous review cycles and has been updated with current (year 2015) fees.

Facility Name	Type of Facility	Tip Fee Per Ton	Transfer Cost	Transfer Station Location	Final Disposal Location	Tons Disposed 2015 (estimate)	Total Revenue Generated
Facilities Open to the Public For Residential Self-Haul Waste Only - Closed to Commercial Haulers						382,003	$55,378,975
Anderson Island	Drop Box	$144.97	averaged across all waste and included in tip fee	Anderson Is.	LRI LF		
Key Center	Drop Box	$144.97		Key Peninsula	LRI LF		
Prairie Ridge	Drop Box	$144.97		Bonney Lake	LRI LF		
Facilities Open to the Public For Residential Self-Haul Waste, Commercial Self-Haul Waste, & Commercial Haulers							
Hidden Valley	Transfer Station	$144.97	see above	South Hill	LRI LF		
Purdy	Transfer Station	$144.97		Gig Harbor	LRI LF		
Facilities Open for Commercial Self-Haul Waste and Commercial Haulers only							
LRI Landfill	Landfill	$144.97	see above	Graham, WA	N/A		
Private Facilities Open to Haulers for their own wastes							
Lakewood	Transfer Station	included as part of the haulers' collection operations		Lakewood	LRI LF		
Murrey's	Transfer Station			Puyallup/Fife	LRI LF		

COST ASSESSMENT QUESTIONNAIRE TABLE 4.1.1

The charts on the final eight pages of the Cost Assessment align system expenses with funding mechanisms for each year 2015, 2016, 2018 and 2021.

The first presents information in dollars (e.g. in 2015 Waste Reduction & Diversion programs are funded from three sources: $770,290 from the CPC component of tipping fees, $590,000 in grant revenue and $1,000 from other sources).

The second table—as specifically requested in section 4.2 of the Cost Assessment Questionnaire—shows the same information as percentages (e.g. in 2015, Waste Reduction & Diversion programs are funded 57% from the CPC component of tipping fees, 43% from grants and <1% from other sources).

FUNDING MECHANISM SUMMARY—2015 (DOLLARS)

	Solid Waste Tipping Fee Components				Other Revenue Sources				
System Component	A	B	C / D	CPC	Grants	Dedicated Reserve Funds	Fund Balance	Other	**TOTAL**
Waste Reduction & Diversion Public Outreach				$770,290	$590,000			$1,000	**$1,361,290**
Environmental Education				$642,230				$1,000	**$643,230**
Capital Improvements							$88,000		**$88,000**
Solid Waste System Administration				$1,676,465					**$1,676,465**
Code Enforcement Nuisance Abatement				$1,271,015	$20,000		$234,205	$15,000	**$1,540,220**
Transfer Stations	$17,037,334								**$17,037,334**
Processing - Composting		$11,628,171							**$11,628,171**
Processing - C&D									**$ -**
Solid Waste Disposal Services			$22,224,935						**$22,224,935**
Post-Closure and Remediation						$443,500			**$443,500**
TOTAL	**$17,037,334**	**$11,628,171**	**$22,224,935**	**$4,360,000**	**$610,000**	**$443,500**	**$322,205**	**$17,000**	

FUNDING MECHANISM SUMMARY—2015 (PERCENTAGE)

	Solid Waste Tipping Fee Components				Other Revenue Sources				
System Component	A	B	C / D	CPC	Grants	Dedicated Reserve Funds	Fund Balance	Other	**TOTAL**
Waste Reduction & Diversion Public Outreach				57%	43%			0%	**100%**
Environmental Education				100%				0%	**100%**
Capital Improvements							100%		**100%**
Solid Waste System Administration				100%					**100%**
Code Enforcement Nuisance Abatement				83%	1%		15%	1%	**100%**
Transfer Stations	100%								**100%**
Processing - Composting		100%							**100%**
Processing - C&D									**0%**
Solid Waste Disposal Services			100%						**100%**
Post-Closure and Remediation						100%			**100%**

FUNDING MECHANISM SUMMARY—2016 (DOLLARS)

	Solid Waste Tipping Fee Components				Other Revenue Sources				
System Component	A	B	C / D	CPC	Grants	Dedicated Reserve Funds	Fund Balance	Other	**TOTAL**
Waste Reduction & Diversion Public Outreach				$991,760	$307,500			$5,000	**$1,304,260**
Environmental Education				$632,560				$1,000	**$633,560**
Capital Improvements							$140,690		**$140,690**
Solid Waste System Administration				$1,695,230					**$1,695,230**
Code Enforcement Nuisance Abatement				$1,194,460	$42,500		$284,520	$29,000	**$1,550,480**
Transfer Stations	$16,723,151								**$16,723,151**
Processing - Composting		$11,445,870							**$11,445,870**
Processing - C&D									**$ -**
Solid Waste Disposal Services			$21,461,935						**$21,461,935**
Post-Closure and Remediation						$417,000			**$417,000**
TOTAL	**$16,723,151**	**$11,445,870**	**$21,461,935**	**$4,514,010**	**$350,000**	**$417,000**	**$425,210**	**$35,000**	

FUNDING MECHANISM SUMMARY—2016 (PERCENTAGE)

	Solid Waste Tipping Fee Components				Other Revenue Sources				
System Component	A	B	C / D	CPC	Grants	Dedicated Reserve Funds	Fund Balance	Other	**TOTAL**
Waste Reduction & Diversion Public Outreach				76%	24%			0%	**100%**
Environmental Education				100%				0%	**100%**
Capital Improvements							100%		**100%**
Solid Waste System Administration				100%					**100%**
Code Enforcement Nuisance Abatement				77%	3%		18%	2%	**100%**
Transfer Stations	100%								**100%**
Processing - Composting		100%							**100%**
Processing - C&D									**0%**
Solid Waste Disposal Services			100%						**100%**
Post-Closure and Remediation						100%			**100%**

FUNDING MECHANISM SUMMARY—2018 (DOLLARS)

	Solid Waste Tipping Fee Components				Other Revenue Sources				
System Component	A	B	C / D	CPC	Grants	Dedicated Reserve Funds	Fund Balance	Other	**TOTAL**
Waste Reduction & Diversion Public Outreach				$1,396,000				$2,000	**$1,398,000**
Environmental Education				$615,000				$1,000	**$616,000**
Capital Improvements									**$ -**
Solid Waste System Administration				$1,750,000					**$1,750,000**
Code Enforcement Nuisance Abatement				$978,000			$549,000	$30,000	**$1,557,000**
Transfer Stations	$16,486,000								**$16,486,000**
Processing - Composting		$12,386,000							**$12,386,000**
Processing - C&D		$4,402,000							**$4,402,000**
Solid Waste Disposal Services			$20,969,000						**$20,969,000**
Post-Closure and Remediation						$457,000			**$457,000**
TOTAL	**$16,486,000**	**$16,788,000**	**$20,969,000**	**$4,739,000**	**$0**	**$457,000**	**$549,000**	**$33,000**	

FUNDING MECHANISM SUMMARY—2018 (PERCENTAGE)

	Solid Waste Tipping Fee Components				Other Revenue Sources				
System Component	A	B	C / D	CPC	Grants	Dedicated Reserve Funds	Fund Balance	Other	**TOTAL**
Waste Reduction & Diversion Public Outreach				100%				0%	**100%**
Environmental Education				100%				0%	**100%**
Capital Improvements									**0%**
Solid Waste System Administration				100%					**100%**
Code Enforcement Nuisance Abatement				63%			35%	2%	**100%**
Transfer Stations	100%								**100%**
Processing - Composting		100%							**100%**
Processing - C&D		100%							**100%**
Solid Waste Disposal Services			100%						**100%**
Post-Closure and Remediation						100%			**100%**

FUNDING MECHANISM SUMMARY—2021 (DOLLARS)

	Solid Waste Tipping Fee Components				Other Revenue Sources				
System Component	A	B	C / D	CPC	Grants	Dedicated Reserve Funds	Fund Balance	Other	**TOTAL**
Waste Reduction & Diversion Public Outreach				$1,446,000				$1,000	**$1,447,000**
Environmental Education				$645,000				$1,000	**$646,000**
Capital Improvements									**$ -**
Solid Waste System Administration				$1,837,000					**$1,837,000**
Code Enforcement Nuisance Abatement				$1,199,000			$401,000	$29,000	**$1,629,000**
Transfer Stations	$16,679,000								**$16,679,000**
Processing - Composting		$13,760,000							**$13,760,000**
Processing - C&D		$7,263,000							**$7,263,000**
Solid Waste Disposal Services			$19,827,000						**$19,827,000**
Post-Closure and Remediation						$326,000			**$326,000**
TOTAL	**$16,679,000**	**$21,023,000**	**$19,827,000**	**$5,127,000**	**$0**	**$326,000**	**$401,000**	**$31,000**	

FUNDING MECHANISM SUMMARY—2021 (PERCENTAGE)

	Solid Waste Tipping Fee Components				Other Revenue Sources				
System Component	A	B	C / D	CPC	Grants	Dedicated Reserve Funds	Fund Balance	Other	**TOTAL**
Waste Reduction & Diversion Public Outreach				100%				0%	**100%**
Environmental Education				100%				0%	**100%**
Capital Improvements									**0%**
Solid Waste System Administration				100%					**100%**
Code Enforcement Nuisance Abatement				74%			25%	2%	**100%**
Transfer Stations	100%								**100%**
Processing - Composting		100%							**100%**
Processing - C&D		100%							**100%**
Solid Waste Disposal Services			100%						**100%**
Post-Closure and Remediation						100%			**100%**

D. SIX-YEAR CAPITAL AND OPERATIONAL FINANCING

None of the objectives, nor related actions, contained in the 2016 Supplement require immediate planning or implementation of new capital projects. The following objectives might, upon further analysis as discussed in the associated actions, trigger a need for capital improvements (e.g., facility expansions) or capital acquisitions (e.g., new equipment or containers). As might be expected, the listed objectives can all be found in the System section of the Supplement befitting the goal that "we support and expand opportunities to minimize waste."

Objective	Project Description	Capital Improvement or Acquisition	Implementation of a Capital Project	Responsible Party	Funding Source
S-1	Pierce County evaluates the feasibility of standardized recycling, yard waste and garbage collection in all sectors of the county.	Containers Vehicles	2018 or later	Certificated and contracted solid waste collection companies; and possibly the City of Tacoma and Town of Ruston.	Ratepayers as part of normal capital replacement cycle.
S-2	Pierce County and the City of Tacoma implement strategies to expand the variety of materials targeted for diversion at transfer stations, where feasible.	Transfer Station Improvements	2018 or later	Per Action Strategy 3 associated with this objective, the lead agencies will be looking to partners to lead and finance diversion opportunities.	
S-4	In Pierce County, people can recycle away from home as easily as they can at home.	Recycle containers made available for placing in public spaces.	2021 or later (outside the time frame of this solid waste plan).	Pierce County	To be determined as part of the 2020 Solid Waste Management Plan.

Separate from the formal solid waste management planning process, both Pierce County and the City of Tacoma prepare six year capital improvement plans affecting their agency operations. Rather than repeating those plans within this 2016 supplement, we direct readers to the following websites:

Pierce County Capital Plan *www.co.pierce.wa.us/DocumentCenter/View/32917* (see page 52)

Tacoma Capital Plan *cms.cityoftacoma.org/finance/budget/2015-2016/cfp_2015-2020/final_cfp_2015-2020.pdf* (see page II-225)

E. TWENTY-YEAR PROJECTED NEEDS FOR SOLID WASTE HANDLING

Chart E-1

MSW Tonnage—Maximum Need / No Action

Year	Population	MSW Tons (4.5-lbs)
2016	841,047	690,710
2017	852,088	699,777
2018	863,386	709,056
2019	874,876	718,492
2020	886,561	728,088
2021	898,444	737,847
2022	910,530	747,773
2023	922,822	757,867
2024	935,323	768,134
2025	948,039	778,577
2026	960,972	789,199
2027	974,128	800,003
2028	987,511	810,993
2029	1,001,124	822,173
2030	1,014,972	833,546
2031	1,029,060	845,116
2032	1,043,392	856,886
2033	1,057,974	868,861
2034	1,072,809	881,045
2035	1,087,903	893,441
	Total Tons:	**15,737,582**

For the purposes of projecting long-term capacity needs for MSW[1], Pierce County maintains a 20-year forecast for the entire County, including the Tacoma and JBLM waste management systems. It is reviewed each year as part of the Landfill Capacity Analysis (see Appendix F) and checked against official population increases and actual disposed MSW and non-MSW tonnages.

Forecasting is based on using official population projections[2]. It represents long-term trends but does not include projections of short-term or seasonal patterns.

Chart E-1 is the No Action Scenario representing tonnage disposal needs needed if the three solid waste systems fail to reduce the amount of waste generated. This projection uses a conservative assumption of a constant per capita MSW disposal rate of 4.5 pounds per day which, although higher than current (2015) disposal rate, is close to the rate used for developing both the 2000 Solid Waste Management Plan and the 2008 Supplement. This conservative approach ensures that sufficient capacity has been planned in case the population grows faster or if the disposal rate increases.

This scenario shows a 20-year need for 15.7 million tons of disposal capacity for municipal solid waste. As shown more clearly in Appendix F, the LRI Landfill could accommodate all of this waste if it reduced how much non-MSW waste it accepted for disposal. In addition to the LRI Landfill, the Pacific Northwest is served by large regional landfills, most located in south-central Washington and central Oregon. Although Pierce County has not conducted an independent analysis, Portland METRO has determined there is “more than 100 years of capacity available among seven landfills within 200 miles of Portland.”[3]

[1] The projections are solely for contracted municipal solid waste (MSW). A substantial amount of non-MSW waste, such as contaminated soils, is disposed at the LRI Landfill. This data chart replaces Table 8-2 of the 2000 Solid Waste Management Plan and Chart 5 in Appendix B of the 2008 Supplement.

[2] The population projections are based on population forecasts adopted by Pierce County in association with the 2015 Comprehensive Plan update (Pierce County Ordinance 2015-40) and adopted Growth Management Act population projections (Pierce County Ordinance 2011-36s).

[3] www.oregonmetro.gov/public-projects/solid-waste-roadmap/landfill-capacity

Chart E-2 MSW Tonnage—20 Year Plan Target			
Year	**Population**	**Avg lbs per person per day**	**MSW Tons**
2016	841,047	3.58	550,167
2017	852,088	3.46	537,443
2018	863,386	3.33	525,078
2019	874,876	3.21	513,019
2020	886,561	3.10	501,258
2021	898,444	2.99	489,789
2022	910,530	2.83	470,660
2023	922,822	2.69	452,292
2024	935,323	2.55	434,652
2025	948,039	2.41	417,712
2026	960,972	2.29	401,443
2027	974,128	2.17	385,818
2028	987,511	2.06	370,812
2029	1,001,124	1.95	356,399
2030	1,014,972	1.85	342,555
2031	1,029,060	1.75	329,258
2032	1,043,392	1.66	316,486
2033	1,057,974	1.58	304,217
2034	1,072,809	1.49	292,431
2035	1,087,903	1.42	281,110
		Total Tons:	**8,272,599**

As described on page 6, this 2016 Supplement continues using 1.09 pounds of municipal solid waste disposal per person per day as the three disposal systems' performance goal or target.

The most recent data available show that residents and business of the Pierce County system are disposing approximately 3.5 pounds per person per day. In Tacoma, with a larger commercial and industrial base, the current figure is approximately 4.45. At JBLM it is 4.55. Averaged together, the residents and businesses across the three systems dispose 3.76 pounds per person per day.

Chart E-2 uses the same population forecasts as in Chart E-1 and shows the pathway, or annual disposal reduction targets, necessary to reach the target of 1.09 pounds by 2040. This scenario shows a 20-year need for 8.3 million tons of disposal capacity for municipal solid waste or just about half as much need as under the worst-case or no-action scenario.

For the next six years (2016 to 2021), the chart forecasts 20 percent reductions in the per capita disposal needs of Pierce County, Tacoma and JBLM. Given differential population growth rates, the overall decline averaged across three systems is closer to 21 percent, down to 2.99 pounds per person per day in 2021.

Chart E-3 MSW Tonnage Capacity			
Year	**Population**	**Avg lbs per person per day**	**MSW Tons**
2016	841,047	3.58	550,167
2017	852,088	3.46	537,443
2018	863,386	3.33	525,078
2019	874,876	3.21	513,019
2020	886,561	3.1	501,258
2021	898,444	2.99	489,789
2022	910,530	2.83	470,660
2023	922,822	2.69	452,292
2024	935,323	2.55	434,652
2025	948,039	2.41	417,712
2026	960,972	2.29	401,443
2027	974,128	2.17	385,818
2028	987,511	2.06	370,812
2029	1,001,124	1.95	356,399
2030	1,014,972	1.85	342,555
2031	1,029,060	1.75	329,258
2032	1,043,392	1.66	316,486
2033	1,057,974	1.58	304,217
2034	1,072,809	1.49	292,431
2035	1,087,903	1.42	281,110
2036	1,103,262	1.34	270,234
2037	1,118,889	1.27	259,785
2038	1,134,790	1.21	249,747
2039	1,150,971	1.14	240,103
2040	1,167,437	1.09	230,837
		Total Tons:	**9,523,305**

The previous two charts focus on MSW disposal needs for twenty years, a planning horizon specifically required by RCW 70.95.090(2). Chart E-3 continues the data shown in Chart E-2 to 2040, the year Pierce County plans to reach its performance target of 1.09 pounds of waste disposed per person per day.

Readers can use the “lbs. per person per day” as a performance metric for any subset of the regional solid waste system (i.e., a city, unincorporated areas) simply by multiplying the population of the sub-area by the metric.

F. LANDFILL CAPACITY

Policy 6.1 of the 2008 Supplement required Pierce County to review whether the LRI Landfill had sufficient capacity to annually accept more than 100,000 tons of MSW from the City of Tacoma, and whether accepting this waste would negatively impact the ability of the LRI Landfill to serve as the County's primary disposal site. This review was necessary to resolve certain conditions and restrictions on Tacoma's use of the landfill as contained in the Conditional Use Permit issued by Pierce County for the LRI Landfill in 1996.

The County recognized that the review required by Policy 6.1 would have utility beyond the immediate decision about Tacoma's waste. To that end, Pierce County negotiated to include an annual landfill capacity review in the Waste Handling Agreement. Section 4.5.2 of the 2008 Pierce County—LRI Waste Handling Agreement requires LRI to annually have an independent third-party engineer prepare a report on remaining capacity in the LRI Landfill. The "Landfill Capacity Analysis" documents disposal of MSW and non-MSW wastes dating back to the landfill opening in December 1999, and then projects future disposal based on scenarios developed in partnership with Pierce County.

The first review, conducted at the end of 2009, was reported to the Solid Waste Advisory Committee in February 2010. This reporting was part of the compliance with policy 6.1 and the eventual decision that accepting more than 100,000 tons of MSW from Tacoma each year would not negatively impact the County's use of the landfill. In reaching that conclusion, Pierce County analyzed three future disposal trend scenarios for each of two landfill capacity scenarios. Chart F-1 shows these six scenarios and Chart F-2 reports the result of the first analysis. The mid-range view was that a smaller footprint landfill would remain open and available until 2030 and a larger footprint landfill until 2038.

Chart F-1
Landfill Capacity Analysis Scenarios: 2009 to 2014

Smaller Landfill Footprint	**Large Landfill Footprint**
No Relocation of Woodbrook Road	Relocation of Woodbrook Road
Total Capacity: 29.4 Million Cubic Yards	Total Capacity: 34.4 Million Cubic Yards
No Action (2007 Level) Disposal at 4.5 pounds per capita per day	
Implement Plan Disposal declines to 1.09 pounds per capita per day by 2032 (per 2008 Supplement Appendix F)	
New Normal (post-Recession) Disposal declines to 1.09 pounds per capita per day by 2032 recognizing significant tonnage declines from 2007 to 2010	

Chart F-2
Landfill Capacity—February 2010 Report

Smaller Landfill Footprint	**Large Landfill Footprint**
No Action April 2025	**No Action** January 2029
Implement Plan January 2031	**Implement Plan** February 2041
New Normal December 2035	**New Normal** March 2046

Analysis for 2016 Supplement

Annually, LRI continues to report on how much volume has been consumed in its landfill and how much capacity remains. This appendix updates the Landfill Capacity Analysis Report prepared at the end of 2014. Projected population now reflects the projections included in the 2015 Comprehensive Plan and the scenarios are modified to reflect current realities.

- Contractual and planning decisions over the past year have resulted in concrete work to relocate Woodbrook Road allowing LRI to achieve the full 34.4 million ton permitted capacity. It is no longer necessary to plan for a smaller footprint landfill.
- For MSW, it is appropriate to use the same No Action and Plan Target Scenarios presented in Charts E-1 and E-2.

Chart F-3
Landfill Capacity—October 2015 Report

Scenario 1—No Action	Scenario 2—Plan Target
MSW Disposal Constant at 4.5 pounds per person per day starting in 2016 See Chart E-1	**MSW Disposal** Declines to 2.99 pounds per person per day by 2016 and 1.09 by 2040 See Chart E-3
Other Tonnage Soils and non-MSW are disposed at constant rate equal to the 1999 to 2015 average of 350,000 tons per year	**Non-MSW Disposal** Declines at a fixed 2 percent per year
Estimated Closure Date November 2030	**Estimated Closure Date** April 2042

Scenario 1—No Action

The No Action Scenario assumes no implementation of the objectives and actions contained in this supplement and an increase in overall per person disposal up to what is considered our historic average peak of 4.5 pounds per person per day. (See Chart E-1) Disposal of soils and other non-MSW remains constant at the historic average of 350,000 tons per year. Under this scenario, the LRI Landfill reaches capacity and closes in **November 2030**.

Note that this scenario is roughly analogous to the Large Landfill Footprint—No Action Scenario shown in Chart F-2. The difference between the two can be attributed to the fact that from 2009 to date residents and businesses have disposed well under 4.5 pounds per person per day due to waste reduction and diversion activities. Reduction and diversion can therefore be shown to have the real impact of extending the life of the landfill.

Scenario 2—Plan Target

The Plan Target Scenario assumes implementation of the objectives and actions contained in this supplement so that per person disposal decreases in line with that presented in Chart E-3, progressing to 1.09 pounds per person per day by 2040. Disposal of soils and other non-MSW decline from current levels at a fixed 2 percent per year. Under this scenario, the LRI Landfill reaches capacity and closes in **April 2042**.

Compared to 2010, this Scenario 2 is most like the Large Landfill Footprint—Implement Plan scenario although the 2016 Supplement slows the rate at which disposal will decline to 1.09 pounds per person per day (adding 8 years to reach the target) and assumes more soil and non-MSW will be disposed in the landfill than in the 2010 analysis. This more conservative approach lends a degree of confidence to this assessment and projected closure date.

G. MINIMUM SERVICE LEVEL ORDINANCES

Minimum Service Level Ordinances are requirements established by Pierce County for residential curbside recycling and yard waste collection. These requirements must be met by the solid waste collection companies operating in unincorporated portions of the county. The Minimum Service Level Ordinances are found in Pierce County Code, Chapter 8.29:

- Minimum Service Levels for Residential Recycling (Ord. #2004-64) *http://www.codepublishing.com/WA/PierceCounty/#!/PierceCounty08/PierceCounty0829.html#8.29*
- Minimum Service Levels for Multi-Family Recycling (Ord. #91-86 (copies available upon request))
- Minimum Service Levels for Yard Waste Collection (Ord. #92-22) (copies available upon request)

H. RESOLUTIONS, INTERLOCAL AGREEMENTS AND CONCURRENCE LETTERS FROM CITIES AND TOWNS

2016 SUPPLEMENT

These cities and towns adopted Resolutions, or submitted Letters of Concurrence to Pierce County, accepting the 2016 Supplement as an update to 2000 Tacoma-Pierce County Solid Waste Management Plan.

Copies of the Resolutions or Letters are available at: *www.piercecountywa.org/swplanadoption*.

City or Town	Resolution Number or Date of Letter of Concurrence
City of Bonney Lake	May 31, 2017
City of Buckley	Resolution No. 17-06
Town of Carbonado	Resolution No. 249
City of DuPont	June 5, 2017
Town of Eatonville	Resolution No. 2017-P
City of Edgewood	Resolution No. 17-0378
City of Fife	Resolution No. 1769
City of Fircrest	Resolution No. 1478
City of Gig Harbor	June 5, 2017
City of Lakewood	Resolution No. 2017-13
City of Milton	Resolution No. 17-1891
City of Orting	May 31, 2017
City of Puyallup	Resolution No. 2335
City of Roy	Resolution No. 841
Town of Ruston	Resolution No. 651
Town of South Prairie	July 3, 2017
Town of Steilacoom	Resolution No. 1150
City of Sumner	April 14, 2017
City of Tacoma	July 12, 2017
City of University Place	June 5, 2017
Town of Wilkeson	May 10, 2017

2000 TACOMA-PIERCE COUNTY SOLID WASTE MANAGEMENT PLAN

These cities and towns passed resolutions authorizing interlocal agreements with Pierce County to adopt the 2000 Plan and to enter into 20-year planning and implementation partnerships.

Copies of the Interlocal Agreements are available at: *www.piercecountywa.org/swplanadoption*.

City or Town	Resolution Numbers
City of Bonney Lake	Resolution No. 872
City of Buckley	Resolution No. 02-01
Town of Carbonado	Resolution No. 128
City of DuPont	Resolution No. 01-237
Town of Eatonville	Resolution No. 2001-H
City of Edgewood	Resolution No. 01-90
City of Fife	Resolution No. 706
City of Fircrest	Resolution No. 669
City of Gig Harbor	Resolution No. 566
City of Lakewood	Resolution No. 2001-16
City of Milton	Resolution No. 1441
City of Orting	Resolution No. 2001-02
City of Puyallup	Resolution No. 1677
City of Roy	Resolution No. 423
Town of Ruston	Resolution No. 325
Town of South Prairie	Resolution No. 208
Town of Steilacoom	Resolution No. 992
City of Sumner	Resolution No. 1031
City of Tacoma	Resolution No. 3511
City of University Place	Resolution No. 300
Town of Wilkeson	Resolution No. 2001.02